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# China

## Outlook and Situation Report

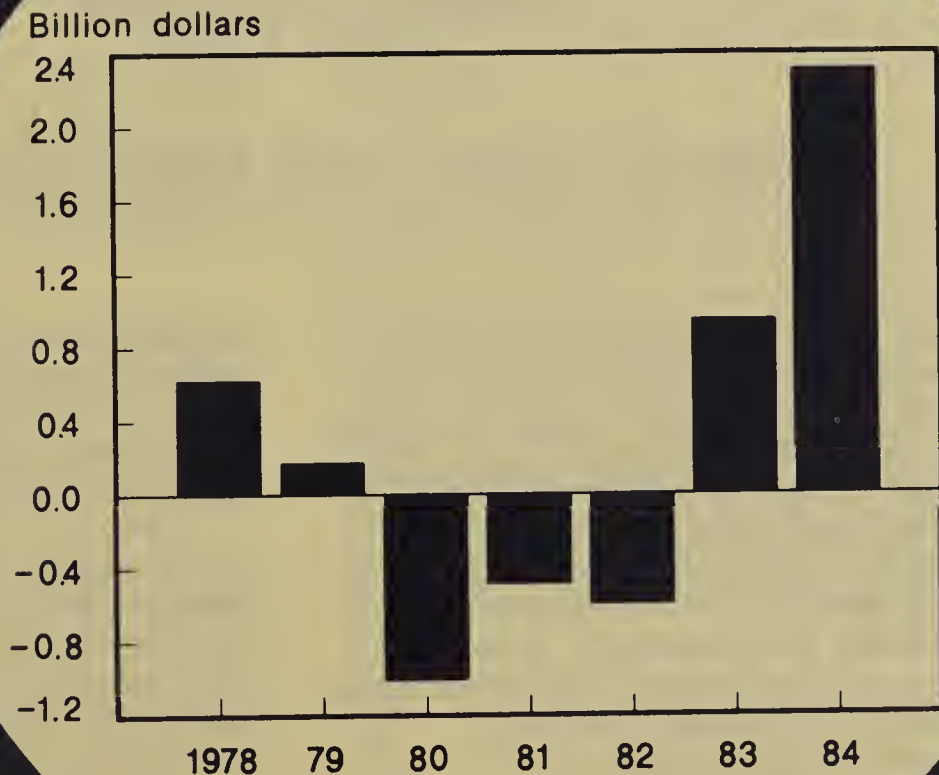
PROCUREMENT SECTION  
COMMITTEE ON AGRICULTURE

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### Net Agricultural Exports



China emerges  
as significant exporter



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## SUMMARY

In 1985, China's farm exports will continue to rise and its imports will drop further. Exports of corn, cotton, soybeans, and soymeal will remain in competition with U.S. goods, particularly in Asian markets. Purchases of wheat, China's remaining major agricultural import, are falling, and U.S. agricultural exports to China during 1985 will be the lowest since 1977.

Last year, China became an important exporter of corn, cotton, soybeans, and soymeal and cut wheat imports because of continued growth of production, high stocks, shortage of storage facilities, congested internal transportation, and limited domestic processing capacity. Surpluses will keep exports up for the next several years, but rapid development of the livestock sector may cut into exports as domestic demand for corn, soybeans, and meal increases. Substantial cotton exports will continue indefinitely.

In 1985, crop production is expected to grow at a slower pace than in 1984. Significant shifts will occur in the crop mix. While another record wheat crop is expected, output of coarse grains and cotton will fall. Production of rapeseed, peanuts, fruits, and vegetables will rise. Cutbacks in government purchases of grains and cotton, together with the elimination of bonus prices for these crops, will cause average crop prices to fall. This will reduce incentives for major crops and heighten farmers' risks.

Grain output in 1984 was up 20 million tons from the 1983 record, despite a continued drop in sown area. While wheat and rice production reached records, coarse grains declined slightly. Cotton acreage and yields continued to rise, pushing output to its fifth consecutive record. Oilseed outturn also rose, due to the large cottonseed crop, but rapeseed production fell.

The livestock sector and feed industry are important development priorities in 1985. Last year, livestock products were up sharply, with meat output reaching 15.25 million tons, 8.8 percent above the 1983 record. With fixed pork prices eliminated and retail prices rising, more hogs will be produced this year. Plans are to use excess coarse grains and byproducts to significantly expand feed processing. Milk outturn rose nearly 20 percent in 1984, to 2.2 million tons, and will continue its fast pace. Poultry and eggs were also more readily available, especially in large cities, and will continue so.

Contributing to the production growth have been improved incentives, increased availability of inputs, and greater efficiency in farming. In the last 6 years, farm households replaced teams as the main farming unit, income was tied to output by government contracts with households, procurement prices were raised, and farm income rose substantially. Big increases were made in private ownership of farm machinery, fertilizer use, demand for rural energy, and private investment in rural production activities. Now, some rural labor has begun to shift from farming to jobs in rural construction, transportation, services, and processing.

Consumption patterns are also changing. Rising incomes have made consumers more quality conscious. Demand for coarse grains for food fell, while demand for high-quality wheat and rice rose steadily, contributing to the surpluses of lower quality products. The shift away from cotton goods towards the relatively less expensive and more popular synthetics continued in 1984. Demand for all livestock products, fruits, and vegetables is also rising, but preferences for these products as well are toward the better qualities.

# CONVERSION EQUIVALENTS

Chinese	Metric		English
1 mu	0.0667 hectare		0.1647 acre
15 mu	1.0 hectare		2.4711 acre
1 jin (catty)	0.5 kilogram =	.0005 ton	1.1023 pounds
1 dan (100 jin)	50.0 kilograms =	.05 ton	110.23 pounds
1 dun (ton)	1,000.0 kilograms =	1.00 ton	2,204.6 pounds
1 jin/mu	7.5 kilograms/hectare		6.93 pounds/acre
Crops	Pounds/bushel	1.0 bushel	1.0 ton
wheat, potatoes, soybeans	60	0.02722 ton	36.743 bushels
rye and corn	56	0.02540 ton	39.368 bushels
barley	58	0.02177 ton	45.929 bushels
oats	32	0.01452 ton	68.894 bushels
cotton (480-lb bale)	NA	NA	4.593 bales
cotton (500-lb running bale)	NA	NA	4.409 bales

## Exchange rate

In 1984 1 dollar averaged 2.32 yuan.

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# WIDENING SCOPE OF AGRICULTURAL REFORMS

Frederic M. Surls 1/

**Abstract:** China is now entering a second stage of agricultural reforms; this includes changing the farm marketing system, limiting the Government's role in marketing, freeing farmgate prices, and raising retail prices. The reforms are essential for long-term development, but will contribute to a slowdown in growth of crop production over the next several years.

**Keywords:** Agriculture, agricultural policy, China, marketing, prices.

China's agriculture has entered the second stage of a revolution that has been in progress since 1978. This new stage, which focuses on improving the marketing system and reducing the Government's role in production and distribution of farm commodities, is a major step in the direction of creating a more efficient, flexible, and market-oriented agricultural system.

The new reforms cover both pricing and marketing. The quantity of farm produce that will be purchased by the Government at fixed prices is being restricted, and producers must now market a growing share of output at market-determined prices. In addition, the Government's marketing agencies no longer stand ready to purchase everything offered for sale. Farmers must find buyers for an expanding range of production.

These changes create an entirely new environment of uncertainty and risk. While farmers in market economies take such an environment for granted, for the last 30 years China's farmers worked in a system where the Government largely determined what crops were to be grown and purchased most output at set prices. The reforms of 1978 to 1983, while introducing greater flexibility and substantially improving the profitability of farming, did not fundamentally alter the distribution system or the degree of risk facing farmers. So, the current reforms mark the beginning of a new era.

While the changes that are being introduced are essential to the long-term vitality of the farm sector, they are likely to generate significant short-run adjustment problems. These problems create substantial uncertainty about the overall growth of agricultural production, the mix of output over the next several years, and the future direction of agricultural trade. They also create major risks for the Government if the transition to the new system proves to be more difficult than expected, if production and incomes are seriously affected, and if agriculture begins to add to the inflationary pressures that China is now experiencing.

## Background of the Reforms

The recent reforms have been forced on China's leadership by the dramatic and unanticipated success of policies adopted between 1978 and 1983. These policies, together with rapid growth of fertilizer supplies and rapid adoption of new technologies for crops such as cotton, brought major changes to the countryside. 2/ The changes have been dramatic, affecting not only the level of production but also fundamentally altering the way the farmers live and work.

- o Overall rural production grew 52.4 percent between 1978 and 1984. Crop

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1/ Leader, China Section, Economic Research Service.

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2/ See previous issues of this report for discussion of the specifics of policy changes between 1978 and 1983.

production, the slowest growing component of output, increased 47 percent. Livestock production gained 71 percent, while other rural sectors—forestry, fisheries, and household sideline production—gained 50 to nearly 100 percent. 3/

- o Rural incomes are up dramatically. Average per capita rural income reached 355 yuan in 1984, compared with 134 in 1978. 4/
- o Rural consumption patterns have changed markedly. Between 1978 and 1983, per capita consumption of wheat and rice rose by 60 percent, while coarse grain and potato consumption fell markedly. Meat consumption increased 73 percent, while consumption of poultry, edible oil, fish, and other products increased by even larger margins. 5/
- o The commune system is being dismantled and its functions dispersed. Households have become the major farm production unit in the countryside. They have received rights to farm set pieces of land for periods of 15 years or more and to produce on the basis of annual contracts signed with purchasers. The role of production teams, the major agricultural production unit for nearly 30 years, has been sharply curtailed. 6/

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3/ This refers to gross value of agricultural output, China's broadest measure of overall farm sector output. See table 2 for details.

4/ These figures are not entirely comparable because of changes in the method of valuing income in kind. See "Dramatic Growth of Rural Income," *China Outlook and Situation Report*, Economic Research Service Report RS-84-8, June 1984, pp. 15-17.

5/ Rural income and consumption survey data from *China Stat. Yearbook*, 1984, p. 474.

6/ Changes in rural organization are discussed at length in Frederick W. Crook, "The Reform of the Commune System and the Rise of the Township-Collective-Household System," in Joint Economic Committee, *The Chinese Economy in the Eighties* (forthcoming).

- o Agriculture has become progressively more commercialized. The share of output that is marketed has grown substantially and an increasing share of rural income is received in cash rather than distributed in kind.
- o Production is becoming increasingly specialized as China has moved to take advantage of interregional gains from trade. As part of this trend, government planning has facilitated the shift of crops between regions, and there are now 25 million specialized households—14 percent of the national total—that concentrate on producing a limited range of items and market an above-average share of output.
- o Major shifts in the rural labor force have occurred. A substantial number of farmers have left farming for jobs in rural construction, transportation, and services. This shift out of farming has accelerated in the last several years. In Jiangsu province, for example, non-agricultural workers increased from 24 to 35 percent of the total rural labor force in 1984 alone. Population of small towns and villages has grown explosively, a trend which China's planners expect will continue in coming years.

Policy between 1978 and 1984 focused on the supply side of agriculture and on increasing total rural sector output. But the rapid growth of agricultural production during this period exposed the weaknesses of the farm marketing system and created severe strains on the budget.

Because of this rapid growth, surpluses and local overproduction of certain commodities began to emerge. The Government's monopoly on purchases of major agricultural products, together with a formal commitment to purchase all quantities of most products offered for sale at prices substantially above retail prices, led to growing stockpiles of many commodities and steadily rising government subsidies to the commercial system. The overloaded transportation system has been unable to shift surpluses between regions. In some cases, the government procurement system has been unable to purchase the volume of goods offered for sale, leading to dissatisfied producers and reduced producer incentives.



At the same time, demand forces have assumed growing importance in the economy. The large increases in incomes have meant that discretionary spending has grown in importance and consumers have become more choosy and less willing to take whatever is available in the marketplace. For example, consumers want lean pork while farmers continue to market traditional fatty breeds of hogs, and there are shortages of high-quality rice and excess stocks of lower grade and less preferred varieties. This mismatch between production and demand has added to the problem of unsold goods in the state commercial system.

These problems are symptomatic of major shortcomings in the agricultural system. The traditional system of government-dominated commerce may have been adequate for a supply-oriented economy characterized by excess demand for many commodities, low commercialization, limited interregional transfers, limited discretionary purchasing power, and a major emphasis on delivery of basic consumer goods with little concern for quality. The system is poorly suited for an economy in which consumer preference plays an increasingly important role. Unless the marketing system changes, producer incentives will be stifled, and consumer dissatisfaction will grow.

Procurement price increases also created serious pressures on the budget. Higher procurement prices, coupled with low and stable retail prices for major commodities, meant growing budget subsidies to cover the losses of the commercial system. Total budget subsidies, a considerable share of which was going to support the gap between low retail prices and procurement prices, amounted to 53 billion yuan in 1983, 42 percent of total budget revenues. Subsidies for grain alone totaled 18 billion yuan, nearly 15 percent of revenues. 7/

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7/ JP-CRF 84-010, 31 May, 1984, p. 3, and "How to Improve the Grain Subsidy System," in *Finance and Economics (Caiwu Jingji)*, 11 December 1984, p. 49.

## The Price Reforms

New programs adopted over the last year will have a significant impact on both the budget and marketing problems.

The most dramatic change is the price reform adopted by the State Council last October. This was accompanied by a significant change in the Government's role in marketing. The basic elements of the reforms are to (1) stop the escalation of, and in some cases reduce, prices paid by the Government for farm commodities; (2) increase state retail prices of major food items, (3) limit the Government's role in marketing farm commodities, and (4) alter the price structure so that markets can begin to play a greater role in agriculture. These changes are to be introduced over several years, but there will be a major impact on the farm sector in 1985.

Actions taken this year include substantial changes for many agricultural crops. For grains, the Government will sign contracts with producers for 75 to 80 million tons of grain and will not guarantee to purchase quantities over the contracted amounts unless market prices drop sharply. Contracted purchases will be largely wheat, rice, corn, and in the northeastern provinces soybeans. This is a major change from the past, when the Government guaranteed to purchase all grain offered for sale and total annual purchases exceeded 100 million tons.

At the same time purchases are being cut, the Government is changing the price of contract purchases. Beginning this year, all grain will be purchased at a uniform price that is a weighted average consisting of 30 percent of the old quota price and 70 percent of the old above-quota price (generally 50 percent above the quota price). Farmers will have to sell grain in excess of the contracted amount on the market at market-determined prices. Buyers on these markets will range from individuals and specialized households to processors who need supplies to supplement government allocations and government marketing agencies filling above-contract needs. However, the Government, at least for this year, will intervene when prices threaten to fall below the old quota price, establishing this as a floor price.



The mix of contracted grain is unknown, but given the types of grain for which the Government intends to contract, the limitations on purchases will probably fall most heavily on grains such as sorghum, millet, other miscellaneous grains, and tubers. A large share of marketings of these grains may be through market channels.

The new single price for grains is probably close to the average price received by farmers in 1983 and 1984, when more than 70 percent of government purchases were at the above-quota price. But prices on the balance of marketings—perhaps 30 percent of the total—could fall as much as 26 percent below the new single price and 50 percent below the price received at the margin in earlier years.

Even more drastic measures have been taken with cotton. The Government, which has until now purchased more than 95 percent of the cotton crop, has announced that it will only sign contracts for 4.25 million tons this year, 70 percent of the 1984 cotton crop. The single price system instituted last year remains in place for this year's crop. No cotton in excess of the contracted amount will be bought under any conditions. Since textile mills are supplied through the Government, there is little market demand for cotton and producers can expect a very low price for above-contract production. Because of these changes, farmers are planting less cotton in 1985, and production will be off sharply.

For many other major crops, changes have been much less drastic. The single price system has been widely introduced for oilseeds, but the Government apparently stands prepared to purchase all production offered for sale at the state-set price, at least in many areas. The profitability of these crops relative to grain and cotton has therefore increased, and acreage should expand substantially.

For other, less important crops, prices have been freed entirely, and contract prices will be negotiated between the government purchasing agency and individual farmers. The same thing has occurred for livestock, as sales of animals at fixed prices have ended.

A second major part of the price reforms is higher retail prices for many food items sold in state-run stores. These supply those

eligible for rations, mainly urban residents, with basic foodstuffs at state-set prices which are often below procurement prices. Prices of basic commodities such as grain and edible oil have not been affected this year, although the Government has given clear notice that prices of these items will rise in the future. But this year, price controls on many commodities, most notably meat, fruit, and vegetables, have been lifted. As a result, substantial retail prices increases have already occurred in China's cities. To cushion the impact, the Government has given urban residents a substantial wage subsidy.

The changes in procurement policy will clearly reduce government subsidies for the commercial system. While the wage subsidies offset some of the current year's budget savings, the subsidy is fixed, and the savings on procurements should increase over time. The changes also begin the process of linking production more closely with demand.

By increasing the share of output subject to market forces, the price reforms are a major move toward more efficiently linking farmers and consumers. Prices will now begin to restrict consumption of goods in short supply and lead to increased production of these items. The Government is also moving to adjust the prices of items it purchases under contract to provide premiums for higher quality goods for which demand is heavy. But these price adjustments are just beginning, and the transition to market prices may prove a difficult one.

### **Modernizing the Agricultural Marketing System**

With farm marketings already up substantially, the government-run commercial system in some regions is clogged with surplus commodities, and there is insufficient transportation to redistribute surpluses. So improving the marketing system has become a top priority for agriculture. These improvements assume added urgency with the prospect of China's farmers trying to find outlets this year for crops the Government will no longer buy.

Modernizing the marketing system is a complex job involving substantial changes in virtually all aspects of marketing: procurement, transportation, storage,



processing, and distribution. Modifications have already been underway for the last several years, but the pace of change is accelerating this year. The major components of the government program involve improving the efficiency of the state commercial system, permitting and encouraging the development of alternative marketing channels, increasing infrastructure investment, and improving the flow of market information to producers.

While the Government's role in distribution of commodities is being curtailed, there is no intention to eliminate the central role for the government commercial system operated by the Ministry of Commerce. 8/ The ministry's system is expected to continue to handle the largest share of transactions, with other forms of commerce playing a supplemental role that increases the flexibility and responsiveness of the system.

To this end, a number of modifications have been introduced for state commerce. Efforts have been underway for several years to weaken the vertical linkages running from the end users up to the Ministry of Commerce in Beijing, and back through the provincial branches of the ministry to the basic units that procure farm products. End users now have greatly increased authority to contract directly with county-level units of the commercial system, and in some cases, directly with producing households.

In addition to this new stress on horizontal linkages, new forms of state commercial organizations are evolving. These include a rapidly growing number of wholesale markets open to farmers and state commercial units that serve both government purchasers and in some cases private traders. In addition, more and varied retail outlets are being established.

Policy has also encouraged the expansion of alternative forms of commerce. Free markets in both urban and rural areas, curtailed during the Cultural Revolution, have

expanded rapidly and now total 56,000. Of this total, 8,000 were established in 1984 alone. Along with the reopening of free markets, government restrictions on individual and collective transportation of agricultural products across county and provincial boundaries have eased. In and of themselves, however, these actions have only a limited immediate impact, since long-distance transportation is overloaded and remains almost entirely controlled by the government transportation departments.

Both the continued dominance of government-controlled commerce and the expansion of alternative marketing arrangements are evident in the data on retail sales. Retail sales outside the government commercial system--largely sales by individuals--expanded from 3.3 billion yuan in 1978 to 50.4 billion in 1984, 15 percent of total retail sales.

Along with the organizational changes affecting marketing, major efforts are underway to improve the marketing infrastructure, increase the utilization of surplus products such as corn, and lower the costs of moving products between regions. Increasing the role of market forces in agriculture requires a long-term program for development of a national market.

*Transportation*---The underdeveloped transportation system and high transport costs are a major bottleneck for virtually all sectors of the economy. Transportation improvements for both short and long hauls are a central part of current development plans.

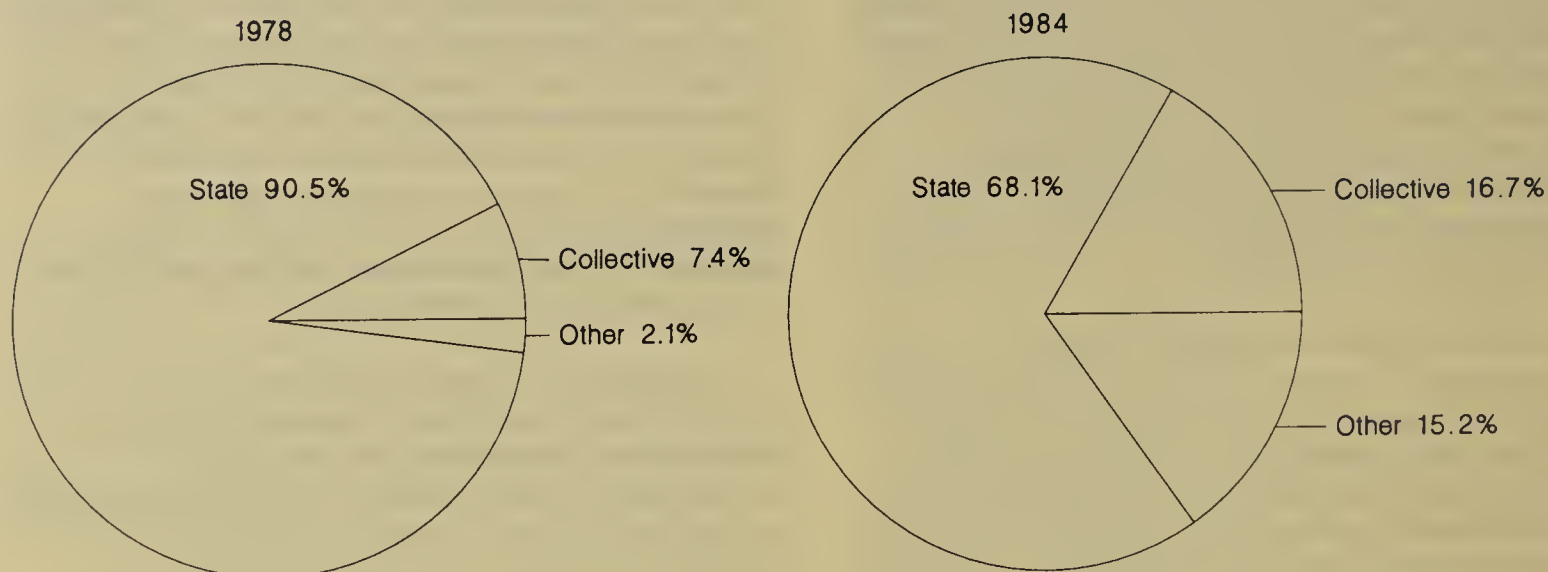
While rural areas in the United States have 5.2 million kilometers of roads, rural China has only 600,000 kilometers to serve about the same area. Only about 20 percent of China's roads are asphalted and average vehicle speed is low. Other problems with the road system include crowded conditions and poor maintenance.

For agriculture, the limited transportation system has meant that the vast majority of marketed output moves only short distances. Bulk products seldom move long distances, and long hauls face stiff competition from nonagricultural products and a complex bureaucratic process involving numerous government agencies. For example,

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8/ The government system includes both a state-owned component and a collectively owned component--the supply and marketing cooperatives. The latter is particularly important in rural areas.

## Retail Sales



increasing grain shipments out of Jilin province after record harvests swamped local storage required complex negotiations between provincial officials and top officials from the State Council; the Ministries of Agriculture, Commerce, Transportation, and Foreign Trade; and a variety of other planning agencies. It also involved commandeering navy ships for movement of grain. While this particular program was successful and contributed to the recent surge in corn exports, it is not feasible on a national scale and indicates the problems that exist for large interprovincial movements of agricultural commodities.

Efforts now underway to improve local transportation involve expanding the rural road network, increasing the number of vehicles available for hauling produce, and allowing households and collectives to provide transportation services. Plans call for construction of 96,000 kilometers of new rural roads between 1985 and 1987. The State Council has allocated surplus grain and other commodities to provincial governments to pay workers on these projects. 9/

The long-distance network is also expanding. The rail system, which handles the majority of long-distance hauls, is expanding through construction of new lines and double tracking. Despite this growth, capacity will continue to be a serious constraint for the foreseeable future. Construction of long-distance highways is also underway, but for agriculture, the impact of these changes will most likely be to improve linkages with rail lines.

*Storage*--Bumper grain, cotton, oilseed, and fruit crops in the past 3 years have exceeded storage capacities. There have been losses because products could not be stored and processed properly. For example, more than 2 million tons of grain are being stored in makeshift shacks in Jilin Province. In Hubei Province, about 100,000 households have contracted to store an average of 10 tons of grain per family. In 1983 and 1984, the State spent 2.19 billion yuan and in 1985-1986 plans to spend another 1.7 billion yuan to build granaries and warehouses. This construction should provide an additional storage capacity for 35 million tons of grain and 1.5 million tons of cotton. It should also expand cold storage facilities substantially.

*Processing*--Investment in processing agricultural products is increasing rapidly. Ambitious plans to expand and upgrade the

9/ China Daily, March 22, 1985, p.1.



grain milling industry are underway, and a massive expansion of the feed industry has already begun. Other segments of the food processing industry are also expanding rapidly. With higher incomes and shorter midday breaks for workers, demand for processed foods and fast foods is growing rapidly. Investment in this sector of the agricultural marketing system will continue to grow rapidly in coming years.

### Implications of the Reform Program

The full implications of the wide-ranging reforms that are now being implemented cannot be assessed with any certainty. If successful, they will mean a more efficient and responsive agricultural system and will have a positive effect on the long-run growth of the agricultural sector. But the adjustments required by the new environment are extensive, and the transition may prove difficult.

The new reforms seem certain to contribute to a slowdown in the growth of the agricultural sector over the next several years. Growth will slow in any case, because input supplies will be growing at slower rates and the easiest opportunities for increasing efficiency are gone. The combination of marketing constraints and the changes in the pricing system will further contribute to slower growth of aggregate crop output.

Farmers are faced with major shifts in the relative profitability of crops. These shifts are likely to vary significantly by region, and the aggregate national impact is very difficult to judge. In areas where there are large surpluses of grains, substantially lower prices can be expected for grain sales in excess of purchase contracts. In other areas, however, prices may fall by very little or may rise.

Where the anticipated price is lower, farmers might be expected to shift to alternative crops. In fact, one of the intentions of the new program is to encourage the production of fruits, vegetables, other specialty crops, and livestock. But the extent of these shifts will depend on ability to market alternative crops, the prices of which may fall sharply if there are large increases in supply. The net effect of the new price system and

marketing constraints over the next several years is likely to be slower growth of input use, an accelerated shift of farmers to other occupations, and a faster decline in area sown to crops.

These factors make projections of crop output extremely difficult. The rapid growth of yields over the last several years will slow, but how fast is unclear. Significant shifts in acreage will also occur. Grain and cotton area will decline, and acreage of most other crops will increase. But how fast these shifts will occur and how large they will be cannot be predicted with any confidence. These uncertainties substantially increase the margin of error in USDA projections of production and trade. They also make it very difficult for China's planners to anticipate the impacts of the programs they are now implementing until more knowledge has been gained about underlying supply and demand relationships.

The move to more flexible prices raises the potential for inflation as the growth of production slows. While stocks of important commodities remain high, the Government can use releases from stocks to hold down market prices when shortages occur. But the regional segmentation of the economy limits the impact of this, even when aggregate national stocks are large. Considerable regional price differentials are likely to emerge. While data are scarce, mid-May data on pork prices in major urban markets indicate that prices vary by as much as 90 percent.

The programs also mean that more surprises may be in store for world markets over the next several years. A large supply response to the new price environment for at least some crops is quite possible. Given the limitations on storage, processing, and internal distribution, a repeat of the use of world markets for disposal of surpluses similar to what occurred in the last year for corn, cotton, and soybeans would then be likely. Given continued purchase guarantees for oilseeds and tobacco this year, peanut and tobacco exports could increase sharply if there is a large shift of acreage to these crops.

An additional potential impact of the reform program is the emergence of linkages between the domestic and international markets for agricultural products. Until now, the combination of fixed government purchase



prices, a tight government monopoly on foreign trade, and guaranteed budget subsidies to cover deficits of the commercial and foreign trade systems prevented any linkages. But with the decentralization of foreign trade that is now in progress and emerging flexibility for farmgate prices, linkages should gradually begin to emerge, particularly for those crops whose prices are now largely market determined.

A final effect of the new system is difficult to assess but extremely important. For more than 30 years, China's consumers have lived in an environment of price stability and low-priced rations for basic commodities. The environment for producers has also been a secure one of set prices for most of what they produced and a guaranteed market for all that they chose to sell. Over the long-run, the new system offers farmers an expanding range of opportunities and the prospect of greater material rewards. It offers consumers wider choices and higher quality goods. But it also means price instability, the possibility of inflation, and loss of the security that was fundamental to the old system. Reactions to the adverse side of the new system have yet to be seen.

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## MACROECONOMY

### *Strong Economic Growth Registered in 1984*

The economy racked up the strongest gains in recent years during 1984, as real GNP grew about 12 percent. Gross industrial output grew 16 percent, while gross farm sector output advanced 10 percent. The energy sector, a major constraint on economic growth, made its best showing of recent years, with a 7.4-percent rise in primary energy output. Other sectors of the economy--transportation and services--also grew rapidly.

Growth rates were far above those called for in the 1984 plan (5 percent for industry and 4 percent for agriculture). The Government has had limited success in recent years in controlling the pace and pattern of development. Rapid growth in 1984 reflected the ongoing decentralization of the economy and the growing importance of non-state enterprises. Industrial output of collectively

owned enterprises grew 22 percent and that of other non-state enterprises (including industry run by towns and villages in rural areas) advanced 57 percent.

Urban and rural incomes both grew about 15 percent during the year. While a 39-percent growth of savings accounts absorbed part of the increase in incomes, inflationary pressures mounted. One important contributing factor was excess bank credit and a large jump in enterprise bonus payments at the end of the year, another manifestation of the problems the central Government is facing in shifting to a less controlled economy.

While the official retail price index increased only 2.8 percent for the year, it grew at a 4.2-percent annual rate in the fourth quarter. This index understates the extent of inflation because of the limited range of commodities included in the index and the predominance of items sold at state-set prices. Prices of individual consumer items where markets play a more important role showed substantially greater price increases.

Foreign trade expanded sharply in 1984 (table 1). The trade surplus narrowed to \$2.3 billion, as exports grew 16 percent while imports were up 37 percent. Manufactured goods accounted for all of the growth of imports, as primary product imports fell. Because of the trade surplus, foreign exchange reserves reached a record.

Plans for 1985 target moderate industrial growth of 8 percent. The main emphasis is to be on expanding key sectors while restraining overall growth in an effort to control inflationary pressures. Further emphasis is on increasing labor productivity and on continuing to push economic reforms in the urban/industrial sector. This will be the first full year for the reforms in the planning and pricing system announced last October.

The number of items that are centrally planned and distributed has been cut back sharply, and a growing share of output is to be marketed directly by enterprises. The shift of enterprise financing from budget allocation to bank credit is continuing, and bank credit controls are being tightened in an effort to prevent excessive lending and currency issue.



Table 1.--Trade and reserves, by calendar years

	1980	1981	1982	1983	1984 1/
Million dollars					
Exports 2/					
total	18,920	21,510	22,960	23,690	27,400
agri.	4,230	4,560	4,260	4,520	5,500
Imports					
total	19,300	18,050	16,710	18,310	25,100
agri.	5,240	5,050	4,860	3,580	3,200
Balance					
total	-380	3,460	6,250	5,380	2,300
agri.	-1,010	-490	-600	940	2,300
Foreign exchange	2,262	4,773	11,125	14,342	14,420
Million troy ounces					
Gold reserves	12.80	12.67	12.67	12.67	NA

NA = Not available.

1/ Estimated.

2/ All values are f.o.b. Data are derived from partner-country reports and differ from China's official statistics.

Sources: Data for 1984 trade are based on Central Intelligence Agency, China: International Trade, Third Quarter, 1984, EA CIT 85-001, March 1985.

Data for 1980-83 trade are from Central Intelligence Agency, China: International Trade Annual Statistical Supplement, EA 85-10055, March 1985. Data for 1980-83 reserves are from China Stat. Yearbook, 1984, p. 423; 1984 reserves were reported in FB 62, 4/1/85, E 3.

To absorb purchasing power generated by the excesses of late 1984, \$2 billion of foreign exchange was allocated for imports of consumer goods during early 1985.

Because of the further decentralization of the economy, the extent to which the Government will be able to control the pattern and pace of growth during 1985 is uncertain. Industrial growth in the first 4 months far exceeded planned rates. Gross national product in 1985 will be up substantially, as will urban incomes. But rural production and incomes may show the smallest increase of the last several years.

Imports are likely to grow at a faster rate than exports in 1985, and China may register its first trade deficit since 1980. Very rapid import growth early in the year has led to efforts to tighten the central Government's control of foreign exchange.

## Slower Growth of Agriculture Likely in 1985

The growth of the rural economy accelerated in 1984, as the gross value of rural sector output was up 10 percent (table 2). Crop output gained nearly 9 percent because of record production for most major crops. Livestock output advanced almost 12 percent, and other components of the rural economy--forestry, fisheries, and household sideline production--gained from 12 to 16 percent. The total value of gross rural output, measured in constant prices, has grown more than 7 percent annually since 1978.

Farm incomes continued the explosive growth of the past 6 years. 10/ Average per capita income in 1984 rose 14.7 percent, implying a gain of about 10 percent after correcting for inflation.

Table 2.--Index of agricultural output

	1980	1981	1982	1983	1984
1978=100					
Total	109.1	115.5	128.5	138.6	152.4
Crops	106.6	112.9	124.5	134.8	146.8
Livestock	122.6	129.9	147.0	152.8	170.6
Forestry	113.7	118.4	128.5	141.7	160.0
Fisheries	103.9	108.5	121.9	132.3	149.8
Sidelines	103.2	115.5	125.3	173.9	195.0

1/ Calculated from State Statistical Bureau data on gross value of agricultural output excluding village industry, in constant prices.

The gains in crop output registered in 1984 were caused by the same factors pushing output up since 1978. Rural policies, most notably the continued expansion of household autonomy, growing specialization, and the incentives provided by higher farmgate prices, continued to have a positive effect on crop yields. In addition to the effects of policy, more inputs and generally good weather also had a positive impact on yields. Fertilizer use was up by nearly 7 percent.

10/ "Dramatic Growth of Rural Income," *China Outlook and Situation Report*, Economic Research Service, RS-84-8, June 1984, pp. 15-17.

The growth of output is likely to slow in 1985. While this may be another good year for crops, total crop output is not likely to show much increase over last year. One reason is the shift in the pricing and marketing systems now underway (see article on "Widening Scope of Agricultural Reform"). Farmers face substantially greater risks than in past years, and for many crops, the prospect of lower prices. As a result, input use may be curtailed, and the reduction in acreage may accelerate somewhat. The pace at which labor shifts from agriculture to alternative employment may also increase. On top of these factors, farmers will be increasing the share of their crops planted to higher quality, and in many cases, lower yielding varieties.

The positive effects of policies implemented in earlier years will continue, but the gains are most likely diminishing. Consequently, yields of major crops are expected to grow less than in recent years. Uncertainty created by the new policy environment makes forecasts of production of individual crops subject to a wide margin of error.

While the outlook for crop production is uncertain, higher prices for most livestock products should lead to substantial growth of the livestock sector in 1985. Ample feed supplies and lower prices for purchased feed should improve the profitability of livestock raising and lead to a significant expansion of feed use. Removal of controls on retail prices of livestock products will also increase profitability, although in some areas, prices of less-desired products, such as fatty pork, may fall.

Other sectors of the rural economy--forestry, fisheries, and household sideline production--will continue to grow rapidly this year. So total rural sector output and rural incomes will again show significant gains. But the slowdown in crop output growth will hold increases below the average of recent years. [*Frederic M. Surls (202)* 786-1616]

## CROPS

China's farmers had an outstanding year in 1984; record grain, cotton, oilseed, sugar, jute and hemp, and tea crops were harvested.

The excellent harvests of the past 3 years have raised stocks, and grain, cotton, and oilseed imports have fallen sharply. Large domestic supplies have enabled China to begin exporting cotton and coarse grains and to raise exports of rice, oilseeds, and soymeal.

Another good crop year is forecast for 1985. Grain output is forecast at 405 million tons, only 2 million tons short of last year's record crop. 11/ Grain area will decrease substantially, and yield increases will moderate from the high rates achieved in the last few years. Wheat output will rise; the rice crop will be about the same as in 1984; but coarse grain and potato production will fall.

Cotton production will drop substantially, largely because of lower area. Oilseed output will drop slightly because of lower cottonseed production, but rapeseed and peanut production will be up sharply. 12/ Output of hemp, sugar, fruit, vegetable, forage, green manure, and other economic crops will be up in 1985, with some crops showing very large increases.

### *1984 Output in Perspective*

The solid gains in 1984 reflect both more inputs and the continued positive effect of reforms implemented since 1978. The reforms first gave a major boost to cash crop production, and then as the household contract system was used to raise grain crops, grain output increased as well.

A comparison of the output of selected major crops in the 6-year period 1979 to 1984 with the 6 years prior to 1979 gives a useful perspective on the impact of the reforms. The 6 years from 1973 to 1978 was characterized by central planning, self-sufficiency with emphasis on increasing grain production, state control of marketing of agricultural products, nonmaterial and egalitarian incentive systems,

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11/ This refers to grain by China's definition including wheat, rice, coarse grains, tubers, soybeans, and other miscellaneous grains.

12/ Total oilseed output includes the production of soybeans, cottonseed, peanuts, rapeseed, and sunflowerseed.



stable state-controlled prices, and the commune system with the production team as the basic unit of account.

Grain production in 1984 increased 5.1 percent to 407 million tons, 34 percent above that of 1978 (tables 8 and 10). Wheat and rice outturn made records in 1984, but coarse grain production declined slightly. Cotton production reached a record 6 million tons. Oilseed output expanded sharply and exceeded the 1982 record by a small margin. The cottonseed and peanut outturns were up substantially; rapeseed declined; and output of other oilseeds rose. Output of sugar, tobacco, tea, jute, and rubber all increased in 1984 (table 3).

Wheat production in 1984 reached a record 87.68 million tons. Production during 1979-84 increased nearly 40 percent because while area did not change, yields increased nearly 40 percent. Output during 1973-78 rose over 50 percent with yields accounting for four-fifths of the expansion and area accounting for the remainder. The sustained growth over the 12 years reflects a combination of high-yielding varieties, increased use of fertilizer and irrigation water, and improved incentives.

Rice output in 1984 rose to a record 178.09 million tons. Production during 1979-84 increased 24 percent, solely because of yield increases. Area decreased more than 4 percent, while yields rose 30 percent. Good weather, increased use of fertilizer, less double cropping, and expanded use of hybrid varieties, plus improved incentives in the latter part of the period, account for most of the increase. Output during 1973-78 rose only 12 percent because area declined 2 percent while yield increases were only 15 percent, about half those of the latter period.

The corn outturn in 1984 increased to an estimated record of over 72 million tons. During 1978-84, corn area fell 8 percent to make more space available for wheat, cotton, oilseeds, and other economic crops, but a 31-percent rise in yields, partly due to the increased use of hybrid varieties, boosted output 20 percent. Output during 1973-78 rose 45 percent, which was more than double the latter increase. Yield increases accounted for 46 percent and area increases accounted

for 54 percent of the expansion in corn production.

The 1984 cotton crop was the fifth consecutive record since 1980 (table 9). Output in the 1979-84 period rose a phenomenal 175 percent. Changes in policy had much to do with this rapid increase. To expand domestic output and to reduce foreign exchange expenditures on imported cotton, government officials issued orders through the planning system to expand area sown to cotton. Farmers also initiated area expansion on their own so that area increases accounted for 34 percent of the rise in output.

Procurement price increases, use of high-yielding varieties, improved incentives and management, and expanded use of irrigation and chemical fertilizers all contributed to yield increases which accounted for 66 percent of the increase. In sharp contrast, output during 1973-78 decreased more than 15 percent. Area declined more than 1 percent, and yields fell 14 percent as farmers concentrated on grain production.

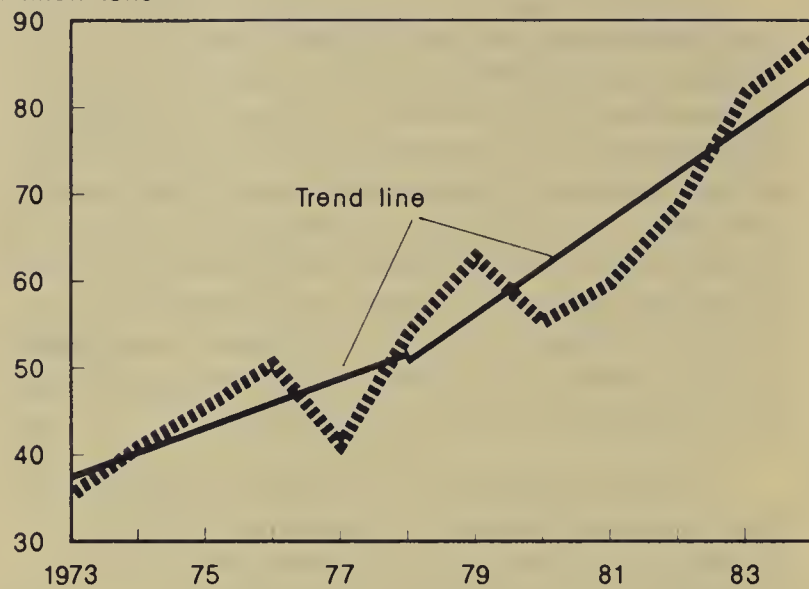
Soybean output decreased 65,000 tons in 1984, to 9.7 million tons, a 0.7-percent decline (table 9). Production during 1979-84, however, rose 30 percent. Yield increases accounted for only 18 percent of the expansion in output while area increases accounted for 82 percent. Output in the previous 6-year period, however, declined 9.6 percent. Yield decreases accounted for 63 percent of the drop in output while area declines accounted for 37 percent.

Rapeseed production fell 2 percent in 1984 to 4.2 million tons, because the Government continued to discourage plantings (table 9). During 1979-84, however, output expanded 75 percent. Yield increases accounted for 69 percent of the expansion in output while area increases accounted for 31 percent. By 1982, surplus stocks led government planners to reduce sown area in 1983 and 1984, but good yields kept output high, and the overall trend for the 6-year reform period is a sharp upswing in production. During 1973-78, output rose a more modest 38 percent. Increases in yields accounted for 37 percent of the expansion in output while the rise in area contributed 63 percent.

## Production of China's Major Crops

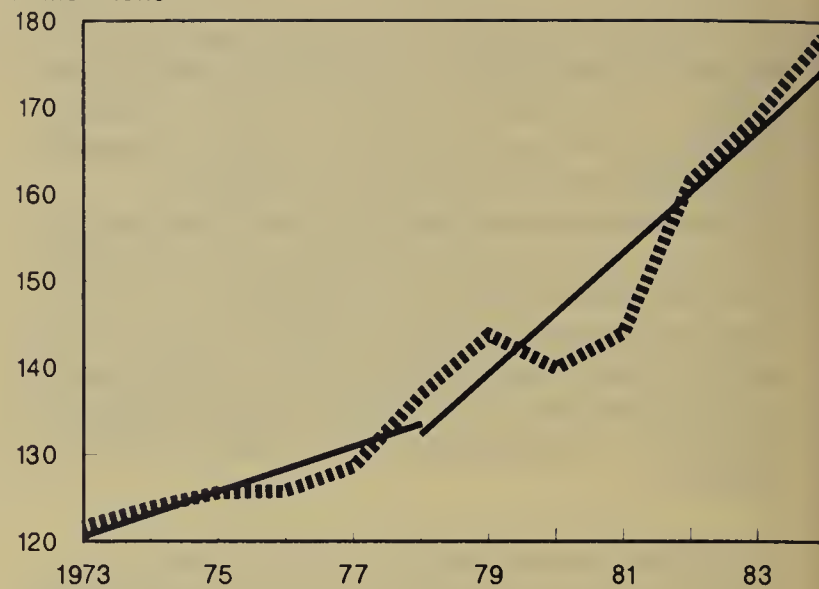
### Wheat

Million tons



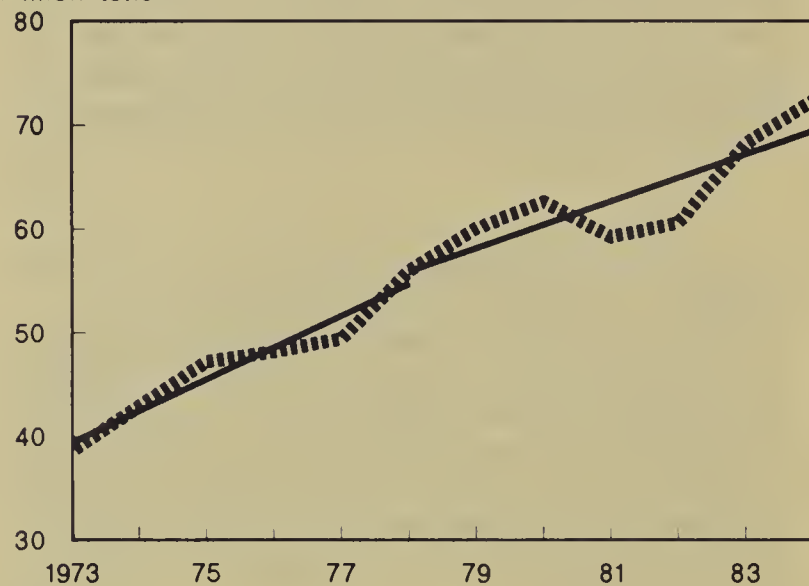
### Rice

Million tons



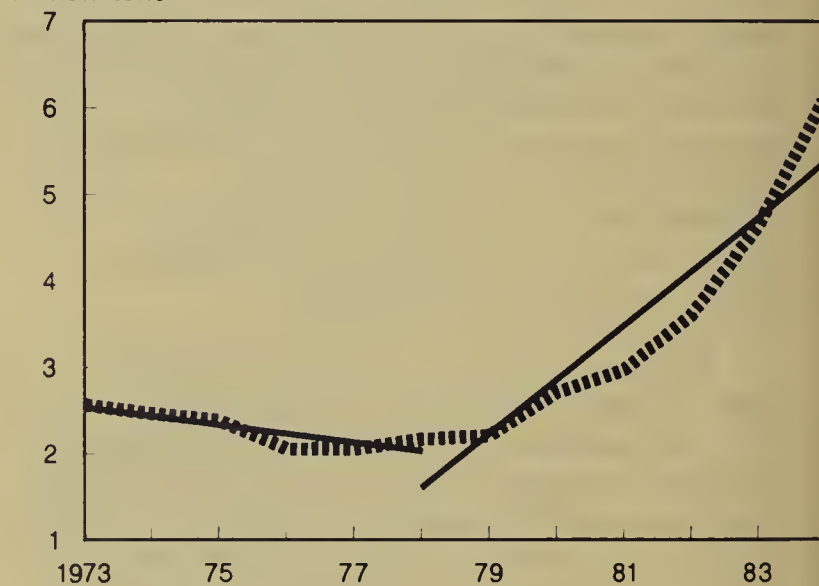
### Corn

Million tons



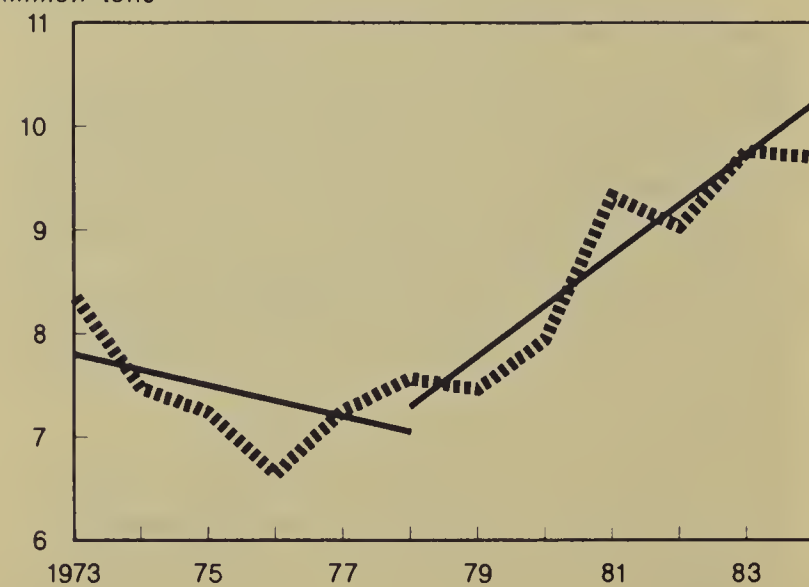
### Cotton

Million tons



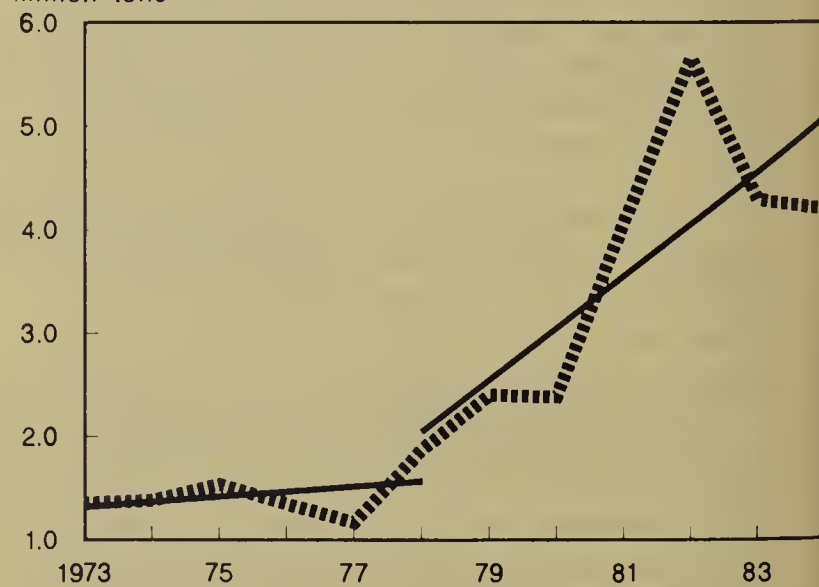
### Soybean

Million tons



### Rapeseed

Million tons





## *Substantial Change in Crop Mix in 1985*

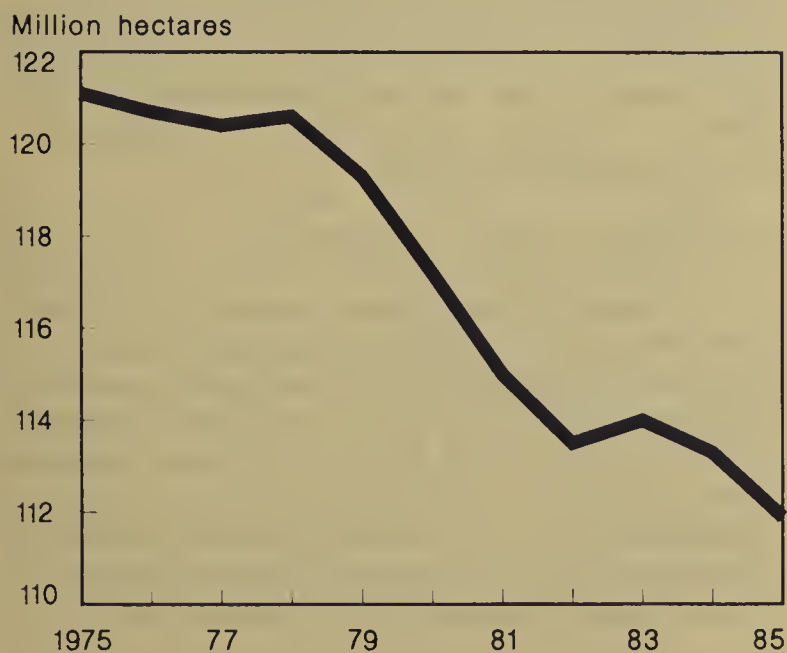
Large shifts in crop acreage may occur in 1985 and 1986 as prices change and the share of output for which the Government contracts drops. Uncertainties about how large these shifts will be and how price changes will affect input use mean that estimates of crop production are subject to an unusually wide margin of error. But for many crops, the direction of change is apparent.

For 1985, area sown to grain and cotton will decrease substantially, and area sown to oilseed and other crops will expand. Grain area for 1985 is forecast to decline by about 2 million hectares. Area sown to grain has been falling since 1978.

Several factors have combined to reduce area sown to grain crops. First, farmers have been given more leeway to plant other crops that give them a higher rate of return. Second, corn and rice surpluses in some provinces caused planners to encourage farmers to reduce area sown to these crops.

Large cotton crops for the last 3 to 4 years pushed up stocks to the point where planners are sharply cutting government purchases in 1985. As farmers cut production because of the drop in government purchases, acreage could fall 500,000 to 1 million hectares.

## **Grain Area**



A large part of area shifted from grain and cotton will be planted to oilseeds. Area sown to rapeseed has already expanded about 1 million hectares. An additional 300,000 hectares, mostly taken out of cotton production in the North China Plain, will probably be planted to peanuts, and area of other oilseeds such as sunflowers will increase as well.

Area of other crops--tobacco, hemp, sugar, tea, fruit, vegetables, and forage--will probably increase at least half a million hectares. The increase for these crops will come because farmers probably will have a better chance to maximize income if they grow more of these crops.

## *Slightly Smaller Grain Crop Forecast*

With area down and only small increases in yields, total grain production in 1985 is projected to fall slightly to 405 million tons. 13/ Slower yield growth is expected because farm households facing increased price risks stemming from changes in price policies likely will reduce their cash purchases of inputs for grain crops. Also yields may be affected because farmers may begin to plant grain crops on less fertile fields, reserving fertile plots for crops that have prospects for earning higher returns.

Wheat output in 1985 is expected to be within the range of 85 to 95 million tons. No change in area sown to wheat is forecast. Decreases in winter wheat area in the Yangtze River Valley will be offset by increases in the North China Plain and in the spring wheat areas in the Northeast Region. Winter wheat yields should be good this year because weather conditions have been favorable. Wheat yields are forecast to rise about 2 percent from 1984. This increase is well below the rapid rate of the past 3 years.

Rice production in 1985 is likely to about equal the 1984 crop of 178 million tons. Area will decline about half a million hectares. Rice yields are forecast to rise, but at a rate of increase below the 5- and 8-percent gains

13/ China's Ministry of Agriculture is also projecting a 405-million-ton crop, but is expecting a larger decline in area--2.5 million hectares--and greater increases in yields.

made in 1983 and 1984. Factors boosting yields include the continued expansion of high-yielding hybrid varieties and the gains from better management and more effective use of inputs. Countervailing forces pushing the rate of increase down include the expansion of special rice varieties, such as glutinous rice which may have lower yields; expansion of dry land rice in the north and the northeast; the possible reallocation of inputs away from rice cultivation to other crops that may have a higher rate of return; and the possibility that 1985 will not bring a repeat of the unusually good fall weather that prevailed in the past 3 years.

Because of lower area, coarse grain production in 1985 is expected to drop about 2 million tons to 93 million. Coarse grains yields will be above the long-term 1964-83 trend, but the rate of increase will be below the rapid increases registered in 1983 and 1984. In particular, corn yields are expected to advance only slightly, compared with 11 and 8 percent in 1983 and 1984. Corn output for 1985 is expected to be 2 million tons below last year's 72 million crop.

Potato crops generally are regarded as food for the poor, and hence, with the rise in per capita income, the demand for potatoes is declining. The area for the crops is forecast to drop, and output may fall 5 to 10 percent. Output of other grains crops is expected to be about the same as in 1984—6 million tons.

#### *Sharp Decline in Cotton Output Forecast*

Total production is forecast to be between 4.35 and 5.23 million tons (20 and 24 million bales), well below the 6.08 million tons picked in 1984. In an effort to reduce total supplies, the Government placed a limit on the quantity to be purchased in 1985/86. The cotton procurement target is 4.25 million tons, nearly 30 percent below 1984/85 procurement. Unlike for grains, the Government will not purchase any cotton above the quota. Any excess output must be consumed by growers or sold on the market, which likely will have low prices given the huge amount of cotton stocks.

The drop in area should be greater in the north. Yields will also fall, particularly in the north. Northern producers, who now account for about two-thirds of total cotton output, are replacing the high-yielding, but poor-quality variety Lumian No. 1 with

varieties that produce a higher quality cotton but may have lower yields.

#### *Cottonseed Down, Other Oilseeds Up*

Total oilseed production for 1985/86 likely will drop slightly. The drop will be caused by the smaller cotton crop, but output of all other oilseeds will rise.

Soybean output is expected to reach about 10 million tons this year because of an area expansion of 300,000 hectares and slight increase in yields. Area will likely expand in regions outside of the Northeast and in provinces on the North China Plain.

Rapeseed output is expected to increase about 25 percent because area sown to the crop increased about 1 million hectares. Most of the expansion occurred in the Yangtze River Valley, where farmers shifted from winter wheat to rapeseed. Rapeseed area increased largely because the Government lifted its limit on rapeseed procurement. Yields are expected to be lower than the last several years because of cool weather this spring.

Peanut output likely will surpass last year's record. Area probably will expand about 300,000 hectares to take the place of area normally planted to cotton and grain. Shandong and Hebei, major grain and cotton producers, plan to expand peanut area this year almost 200,000 hectares. Yields will be around 2 tons per hectare, a little lower than the record yield achieved in 1984.

The sesame crop could rise to as much as 500,000 tons, a 7-percent increase. Sunflowerseed production will be about the same as in 1984. Area sown to sunflowerseed may well be expanded some, as farmers in the Northeast region use sunflowers to replace corn. Yields are expected to be slightly less than last year's record.

#### *Other Crop Output Up in 1985*

The output of tobacco, sugar crops, jute and hemp, tea, fruits, and vegetables is forecast to rise in 1985 because of expanded area and yield increases. Individual crops in this category could show dramatic increases as farmers search for profitable alternatives to grain and cotton. Watermelon production in seven major producing provinces is expected to increase substantially this year. For



Table 3.--Other agricultural product output

Product	1981	1982	1983	1984
	1,000 tons			
Sugar crops	36,028	43,594	40,323	47,946
Sugarcane	29,668	36,882	31,141	39,662
Sugar beet	6,360	6,712	9,182	8,284
Sugar	3,166	3,384	3,771	3,740
Tobacco	1,497	2,179	1,381	1,650
Flue-cured	1,279	1,848	1,151	1,400
Tea	343	397	401	411
Jute and hemp	1,260	1,060	1,019	1,489
Silk cocoons	311	314	340	357
Aquatic products	4,605	5,155	5,458	6,060
Rubber	128	153	172	(188)
Fruit	7,801	7,713	9,487	NA

( ) Indicates derived from percentage increase.  
NA = Not available.

1/ USDA estimates.

Sources: China Stat. Yearbook, 1981, 1983 and 1984; China Ag Yearbook, 1981, 1982, and 1983, and 1984; and the 1984 SSB Communique.

example, Hebei province doubled its watermelon acreage this spring.

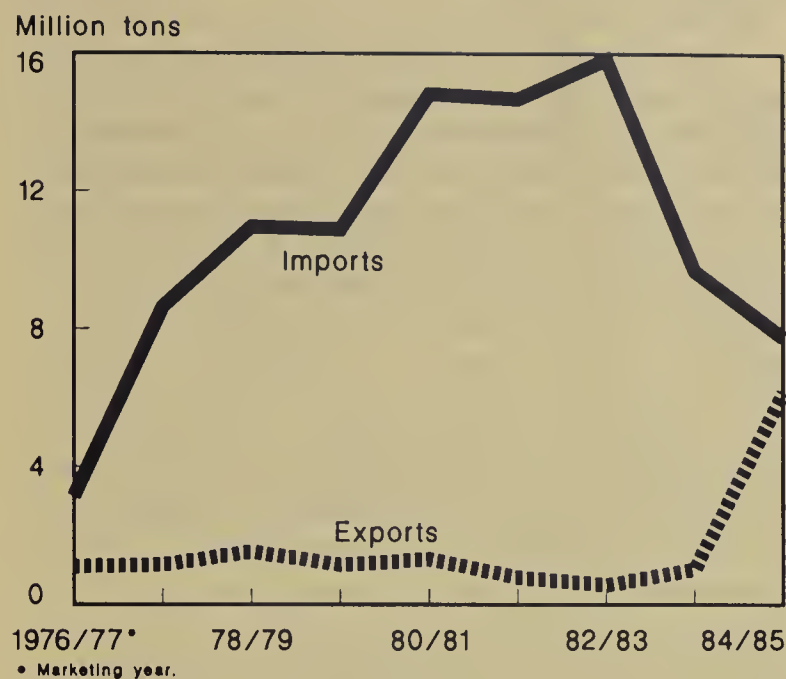
### *Consumption and Trade Patterns Changing*

This fiscal year, China has been a major exporter of corn, cotton, and soybeans--three crops it recently imported--and will continue to export large quantities of rice. Wheat imports continue, but have fallen significantly. Increased production, excessive stocks, and an overburdened transportation system are primarily responsible for these changes.

Grain imports fell from the peak of 15.8 million tons in 1982/83 to only an estimated 7.8 million in 1984/85 (table 14). Wheat is by far the largest grain import.

Of all grains available for human consumption in China, wheat is one of those most preferred by consumers. Most wheat is milled into flour for human consumption, and only a small percent is fed to livestock. Government authorities sought to increase wheat availability through expanded domestic output and imports. In the previous 5 years, per capita availability rose from about 53 kilograms in 1975 to 73 in 1979, an increase of 38 percent. During 1980-84, per capita wheat availability rose from 68 to 94 kilograms, also an increase of 38 percent. All of the increase came from expansion of domestic output.

## China's Grain Trade



Wheat imports in 1984/85 fell to an estimated 7.5 million tons, down from 9.5 million the year before and well below the 13.7 million imported in 1980/81. Because of strong demand for wheat, the desire to build national reserves, and the continued need to supply the urban population and inland wheat deficit areas that have good transportation links to major ports, wheat imports for 1985/86 are forecast to be about 7 million tons. Wheat imports are expected to begin to rise again late in the decade, as population and incomes continue to expand. Demand for finer quality grains and breads, which were just recently introduced into the diet, will continue to grow rapidly.

Rice is the other most preferred grain. Most paddy rice is husked and polished for human consumption, but small quantities of low-quality rice are fed to livestock in rice surplus regions. In 1975-79, per capita availability of rice (milled) rose from 94 kilograms to 102, an increase of 8 percent, but during 1980-84, availability rose to 118 kilograms, a 19-percent increase.

As per capita rice availability has increased and as per capita incomes have shot up, consumers have become more selective. They are demanding better quality rice and greater variety, and are considering factors such as different kernel lengths, glutinous and nonglutinous qualities, color, the percentage broken, and aroma. Also consumers in

traditional nonrice eating areas want to consume more rice.

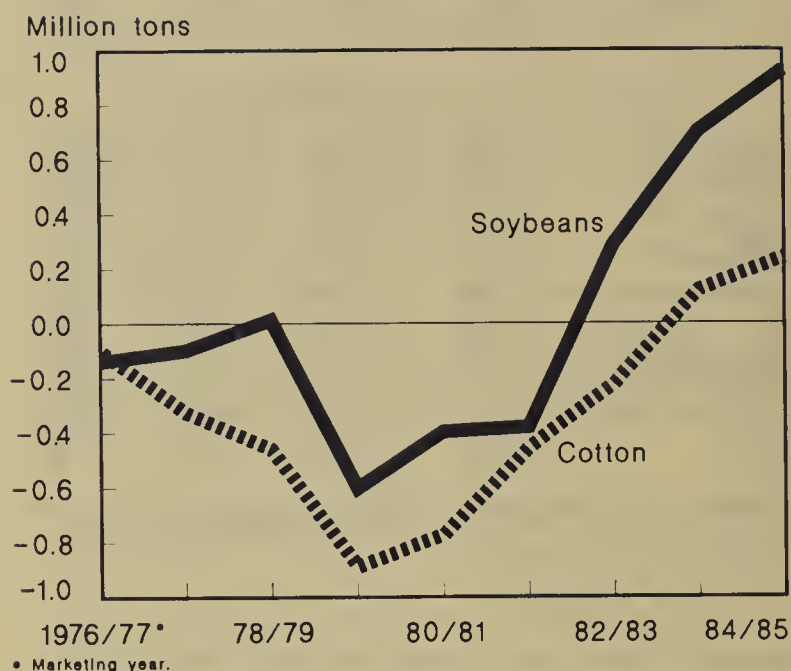
Coarse grains--corn, sorghum, millet, barley and oats--are consumed as food, feed, and also have industrial uses. A large portion of these crops once served as food, and large quantities of corn were imported to help meet calorie and feed requirements. For example, as recently as 1982/83, China was importing about 2.5 million tons of corn. But with increases in wheat and rice supplies, a larger corn outturn, and increased per capita income, coarse grain uses are changing. Food use of these grains is declining, and feed use is increasing. Rural income and expenditure surveys note that average per capita consumption of grain increased from 248 kilograms in 1978 to 260 in 1983. In this same period, however, the consumption of coarse grains and potatoes declined 50 percent, from 126 kilograms in 1978 to 64 kilograms in 1983.

China's feed industry is relatively underdeveloped and does not now have the capacity to use large quantities of coarse grains. The wet milling industry is also just beginning to be developed. Given falling food demand for coarse grains, high stocks of corn, and low capacity to mill coarse grains into food, feed, and other products, exporting them is a short-term avenue to reduce stocks. Coarse grain exports are expected to reach 5 million tons in 1984/85 and may exceed 3.5 million in 1985/86.

Large coarse grain exports, however, may be a temporary phenomenon. Feed mills are being rushed to completion and plans are being laid to construct plants to wet mill corn. When these mills are constructed and operating, it may be that China will draw stocks down, cut back on exports, and again be in the world market seeking supplies of coarse grains.

Cotton production in the past 3 years has far exceeded mill demand for cotton, and large stocks have accumulated. For example, rural per capita consumption of pure cotton cloth dropped 19 percent from 1982 to 1983, and dropped 44 percent from 1978 to 1983. On the other hand, purchases of synthetic cloth increased 53 percent in 1983, and 365 percent from 1978 to 1983. The spinning of cotton yarn declined in 1983 and 1984, while the

## Net Soybean and Cotton Exports



output of chemical fibers increased (table 11). End-of-year cotton stocks in 1984/85 are forecast to be 109 percent of annual consumption. Moreover, China has nearly one-half of the world's total cotton stocks. Given large stocks and a slow rise in domestic demand for cotton products, China will continue to export substantial amounts of cotton in subsequent years as it has this year (table 15).

Edible oil availability of 4.6 kilograms per capita is low compared with average world consumption. Rising per capita incomes have increased demand for edible oils, and China's planners expect demand to increase rapidly over the course of the next 10 to 15 years. Available oil in 1985/86 should rise about 3 percent but available meal should be about the same as in 1984/85.

Despite this growing demand, 925,000 tons of soybeans will be exported in 1984/85, and a similar quantity is expected to be shipped in 1985/86. Soybean meal exports rose from less than 300,000 tons in Oct/Sep 1981/82 to more than 600,000 tons in 1984/85 (table 15). Meal exports are expected to continue at about this level in 1985/86. In the future, however, the combined demand for edible oil and use of oilseeds as an ingredient in livestock feed should pinch off exports and China may again become a net importer of oilseeds. [Frederick W. Crook (202) 786-1616]



## LIVESTOCK

Annual production in China's livestock sector, both in terms of value and physical product, has been steadily increasing since 1979. Because early stages of agricultural reforms raised procurement prices, expanded private plots for fodder crops, and encouraged private feeding of animals, growth rates of livestock production, particularly pork, were very impressive for a couple of years at the end of the 1970's. However, limited storage and transportation facilities, along with structural changes in the commune system that caused households to neglect livestock raising, hampered the early momentum of rapid expansion. Growth rates slowed significantly between 1980 and 1983.

### *Rapid Growth Resumed in 1984*

In 1984, livestock products resumed rapid expansion. Total meat production, including pork, beef, and mutton, grew to 15.25 million tons, an increase of 8.8 percent from the 1983 record (table 12). The expansion in meat output, particularly pork, can be attributed to the increasing availability of feed grains, strong demand for meat induced by growing incomes, increased cold storage capacity, and some improvement in transporting meat to urban areas.

Pork output, which contributed about 94 percent of China's total meat output in the last few years, is estimated to have grown at the same pace as total meat production in 1984. Despite the relatively fast increase, demand for pork, particularly lean meat, has continuously outgrown supply. Recent temporary resumption of pork rationing in Beijing at the beginning of 1985 illustrates the sustained and strong demand for pork, especially in big cities.

Although China's 1984 yearend hog inventory expanded 2.5 percent, annual yearend inventories have generally been maintained around 300 million head in the last several years (table 12). Annual slaughter rates of hogs, however, have made impressive progress in the last 6 years, up from the 55.2 percent in 1978 to the 73.3 percent in 1984. The increased slaughter rates imply that farmers have fed more grain to hogs and, as a result, hogs have become marketable in a shorter feeding period.

The fast growth of processed feed production is further evidence that China is determined to gradually improve the feeding efficiency of the livestock sector. Recent reports indicate that 1984 mixed and compound feed production reached 12 million tons, more than double the total processed feed output in 1982 (see "China's Feed Industry"). This expansion has been one of the factors contributing to the growth in pork output, from 8.56 million tons in 1978 to over 14 million in 1984.

Slaughter rates of ruminant animals, including cattle, sheep, and goats, also improved in the last 2 or 3 years. Ruminant meat production expanded steadily as well (table 12).

Production of dairy products, particularly cow's milk, reportedly has grown significantly in 1984. Cow's milk, for example, rose to 2.21 million tons, up nearly 20 percent from the previous year.

Although no statistics are available, poultry and egg output appear to have also increased remarkably last year, particularly around big cities, because more processed feed was available. The Government finally recognized the efficient grain-meat conversion of the poultry industry and started vigorously promoting poultry production in 1984.

Wool output was down slightly in 1984 for the second consecutive year. Households raising sheep have complained about the low and unprofitable wool procurement prices and the lack of quality distinction in those prices. Therefore, 1984 yearend inventory of sheep and goats declined for the third year in a row, to 158.24 million head, about 16 percent below 1981.

### *Diversification of Livestock Trade Initiated*

While total livestock product trade is up, the growth of trade in individual livestock products, in volume terms, has generally been slow in recent years. Only exports of canned pork and rabbit hair and imports of wool show consistent expansion (table 4). A major reason for the slow trade expansion is that China's exports of live animals and livestock products mostly went to Hong Kong, where China had

Table 4.--Trade of animals and animal products

Year	Exports									Imports	
	Live animals			Frozen meat			Canned pork	Eggs	Rabbit hair	Wool	Animal fat
	Hogs	Cattle	Poultry	Pork	Poultry	Rabbit					
1,000 head			1,000 tons								
1978	2,462.8	134.2	18,850	42.8	34.6	39.3	29.5	40.6	2.3	10.3	78.3
1979	2,422.2	187.6	17,460	44.9	43.1	43.5	37.1	49.8	2.7	16.9	81.2
1980	2,468.2	237.4	19,010	63.8	43.9	38.6	48.0	52.8	4.2	37.4	130.4
1981	2,574.2	232.4	21,340	67.2	41.8	31.5	49.4	55.1	4.6	34.9	46.2
1982	2,649.6	223.7	21,640	96.8	44.6	40.3	66.6	54.3	3.4	70.3	56.2
1983	2,620.6	208.9	19,730	95.6	50.2	33.8	76.3	54.1	7.6	71.5	36.3

Source: China Stat. Yearbook, 1984, pp. 397-99, and pp. 412-13.

already captured a major share of the market. Further increases in livestock exports to Hong Kong or to other markets will require first raising the quality of the exported products.

China made the first successful shipment of about 1,000 beef cattle, mostly from Shandong and Hebei, to Japan in 1984, and will likely increase the number of cattle exported to Japanese markets in the future. But development of the livestock sector and future export growth will depend heavily on improvements in breeds. To this end, China has initiated and signed various livestock quarantine agreements with countries including the United States, Canada, Australia, New Zealand, Japan, Denmark, and Holland. The United States has recently shipped 500 to 600 head of Holstein dairy breeding stock to Guangzhou and Heilongjiang, and Japan has also exported about 100 Holsteins to China.

Recent reports also indicate that China reached a technical assistance agreement with Australia covering items such as transfer of livestock embryo transplanting technology and imports of frozen semen. Canada has already signed the same type of agreement, but consultations are still ongoing between the United States and China.

Other important foreign assistance programs that are in progress include a meat research center being built in Beijing and the World Food Program dairy project being implemented in six large cities. The meat research center is financed by Japan, and

development of new breeds will be a major responsibility of the center.

The dairy project has already successfully raised the fluid milk supply in big cities such as Beijing, Tianjin, and Shanghai. The project helps China to reconstitute skimmed milk powder with butter oil and then mix with fresh milk to increase milk supplies. The project also provides technical assistance in raising and managing dairy cows and in storing and marketing milk.

#### *Good Prospects for Livestock Production*

Livestock production is and will be one of China's top agricultural development priorities. Bumper crops in the last 3 years have provided the initial grain base needed for faster growth. One of the most important announcements made in 1985 regarding livestock development is the plan to expand the feed industry. The Government seems to have conscientiously promoted overall planning for the feed manufacturing industry by listing production targets, the number of various feed mills to be built, and other financial and administrative assistance needed from local governments. Details on the development plan are discussed in "China's Feed Industry," at the end of this report.

As already mentioned, the 1984 total mixed and compound feed output increased almost 50 percent over the previous year. With feed output increasing in 1985 and in future years, China will continue to improve the livestock sector's overall feeding

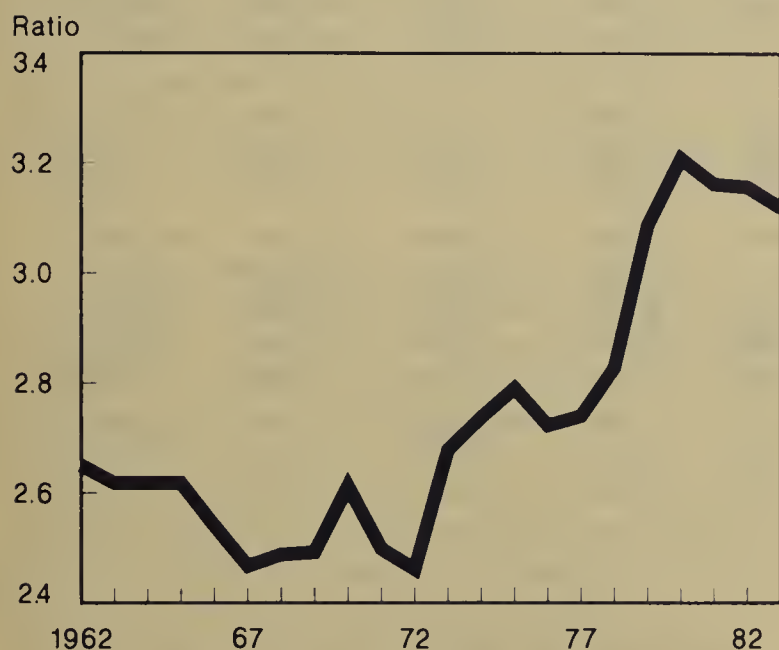


efficiency. The hog subsector will still dominate total meat output, but poultry and milk production will grow at a much faster pace.

Another policy critical to pork production is the reform of the state hog procurement system and the elimination of fixed pork prices. Reports from the press in the last several years indicate that in some areas, especially the northeastern provinces, low hog procurement prices encouraged farmers to sell grain to the Government rather than feeding it to hogs. Although provincial statistics are not available to prove this, national hog/grain price ratios, which are calculated from the average live hog procurement and average grain prices do show a slight but steady decline since 1981. After the new pricing policy was imposed at the beginning of this year, pork prices have increased to an average of about 30 percent in the 22 provinces that have carried out the policy.

Price differentials among various grades of pork have also increased. Consumers, despite paying more now, are reportedly better satisfied with what they can purchase, particularly knowing that government subsidies, in the form of increased salaries of state employees, will be available beginning in June. Therefore, this policy is to encourage farmers not only to feed more hogs because of higher pork prices, but also to choose better breeds for better quality pork output.

### Hog/Grain Price Ratio



While the general outlook for livestock production is favorable, there are, however, some possible adverse impacts that could result from the above policies. First, feed production, particularly in rural areas, may not be good quality and could fall short of demand because of shortages of feed manufacturing machines and processing skills. The slow growth of feed output in some local areas has already failed to meet the demand for processed feed. Another problem is that supplies of good animal breeds are particularly hard to find in rural areas. Native hogs, for example, will not convert feed grain as efficiently and are unable to provide much better quality pork, even if fed more grain.

Stable supplies of processed feed, or even unprocessed feed grains, are extremely important in the initial stage of the livestock program, and a severe shortfall in grain production in the next couple of years could create the hog production cycle. The cycle is often hard to correct in a short time, particularly now with a more relaxed price policy.

Although the Government has recently provided an extra 10 million tons of grain for development of the livestock sector to prevent shortages of feed grains, severe shortfalls of grain production could badly damage the stability of peasant income and peasants' confidence in the new policy. Finally, an information service that provides prompt and timely market information, particularly prices and output quantities, will also be critical to the livestock producers. [Francis C. Tuan (202) 786-1616]

### INPUTS

Increases in farm machinery and chemical fertilizer supplies, along with more efficient use of these resources, greatly helped farmers produce bumper crops in 1984. In 1985, state and local investment will boost farm machinery and chemical fertilizer production capacity. Expansion of energy supplies is a top national priority, but it will take many years to solve deficit problems, and rural areas will be energy short again in 1985.

## Private Ownership of Machinery Boosts Output

A substantial change in the ownership of farm machinery has occurred. Prior to 1979, farmers were forbidden to own tractors, but policies changed and, by the end of 1984, 68 percent of the 4,110,000 tractors in the country were owned by rural households (table 5). Households now generally farm small plots of land that do not require large tractors and implements. The stock of large tractors increased only 15 percent in the past 5 years, compared with a 75-percent rise for small tractors. No national data are available, but local surveys suggest tractors owned by households have the following uses: 11 percent used solely for transport, 54 percent for both farming and transport, 27 percent used solely for farming, and 8 percent for other uses.

Nearly 9 million rural people are operating farm machinery and millions of families are providing custom farm machine work for neighbors. These households are competing with commune tractor stations. Efficient stations have competed well, but less

well run stations have opted to rent their machinery to households and to provide repair, fuel, and spare parts.

In 1985, small tractor production will continue to expand. The downward trend in large tractor output will end this year as the production target is 50,000 units, a 25-percent increase above 1984. Some of the demand to transport inputs and products will be met by planned output of 76,500 trucks for rural areas. Of these, 30 percent will be sold to households and 70 percent will be sold to rural collective entities.

To increase the capacity to move water, pumps for 50,000 deep wells in North China will be manufactured, and 40,000 pumps are scheduled for wells in South China. To assist the development of the livestock sector, the machine industry plans to expand production of equipment such as forage harvestors, fence materials, and windmills to pump water. High priority is also being given to the manufacture of more than 10,000 sets of feed processing equipment.

Table 5.--Major manufactured farm inputs

	Unit	1980	1981	1982	1983	1984
Yearend stocks						
Large-medium tractors	1,000 no.	745	792	812	841	857
Hand tractors	"	1,874	2,037	2,287	2,750	3,289
Rural trucks	1,000 no.	138	175	206	275	NA
Power irrig. & drain. equip.	1,000 hp.	74,645	74,983	76,697	78,492	78,281
Machinery production						
Large-medium tractors	1,000 no.	98	53	40	37	40
Hand tractors	"	218	199	298	498	670
Internal combustion engines	1,000 hp.	25,390	20,840	22,960	28,990	NA
Rural electric consumption 1/	Mil. kWh.	32,080	36,990	39,690	43,520	46,200
Fertilizer output 2/						
Nitrogen	1,000 tons	12,321	12,390	12,781	13,789	14,820
Phosphate	"	9,993	9,857	10,219	11,094	12,260
Potassium	"	2,308	2,508	2,537	2,666	2,520
	"	20	26	25	29	(40)
Fertilizer applied 2/	1,000 tons	12,694	13,349	15,134	16,598	17,731
Chemical pesticides	"	537	484	457	331	310

(1) Indicates derived.

1/ Not all for agricultural production.

2/ All figures in effective nutrient weight.

Sources: Various annual SSB Communiques; China Stat. Yearbook, 1984, pp. 169, 175, 227, and 229.



## *Demand for Energy Rises Substantially*

Demand for energy has risen sharply because of the increased use of tractors and trucks in agricultural production and the expanded use of pumps for irrigation and drainage. Also, structural changes in the rural economy have increased demand for transportation services, and this shift has meant increased demand for fuel supplies to operate buses, trucks, and tractors with trailers hauling fertilizer and grain.

Moreover, the expansion of rural industry has sharply increased the demand for energy. Likewise, population growth and the increased use of televisions, electric fans, refrigerators, and washing machines add to the general energy requirement.

Currently, more than 40 percent of China's rural population lives in villages without electricity. Moreover, most villages are short of domestic fuel supplies for 2 months each year. Diesel fuel shortages are common, and rural industries operate on reduced production schedules because of energy shortages.

China's planners are responding to energy shortages by trying to increase supplies and by conserving energy. The nation is investing in large and small hydroelectric projects. In 1984, 1,421 small hydroelectric generating plants were installed, bringing the total number of such units to 78,000. Small plants account for about one-third of the nation's hydroelectric generating capacity and provide a large share of rural electrical requirements. Rural electric power consumption for 1984 rose 6.2 percent from 1983, to 46.2 billion kWh. High priority also has been given to state investment to boost coal and petroleum output.

On the conservation side, fuel-efficient stoves have been installed in 18 million households. The use of solar cookers expanded to 70,000, and half a million are scheduled for installation by the end of the decade. Methane gas generating pits now number over 4 million. An average of 600,000 units were built each year from 1982 to 1984, and the number of pits is scheduled to double by 1990. The gas produced in these pits is used primarily for domestic household use, but is

also beginning to be used as an energy source to dry grain and to power food and feed processing machinery.

## *Improved Agricultural Chemicals To Be Applied*

China is now the third largest chemical fertilizer producer, following the United States and the USSR, and is also a major importer of chemical fertilizers. In 1984, application of chemical fertilizer expanded nearly 7 percent to 17.7 million tons (nutrient-weight basis). Most of the increase came from domestic production, which rose 7.5 percent to 14.8 million tons. Imported chemical fertilizer rose only slightly over 1983.

The outlook for 1985 is for continued expansion of chemical fertilizer production and a substantial increase in the output and use of better quality compound fertilizers. Nitrogen output expanded 10.5 percent in 1984 and likely will rise substantially again in 1985. Urea from the 13 large imported plants is still in short supply, however. Important reforms are taking place in the industry, as over half of the output comes from small local plants, some of which produce inferior products. Inefficient, high-cost, high-energy-consuming plants will be closed, and capacity of more efficient plants will be expanded.

Phosphorous fertilizer output declined more than 5 percent in 1984 primarily because some rural plants produced low-quality products that farmers would not purchase. Stocks rose, and output was cut back. Production should begin to rise as the construction of eight new phosphate mines are completed in Yunnan, Hubei, and Sichuan provinces. New domestically produced equipment is being installed in a dozen phosphate plants to increase output of ammonium phosphate.

Potassium output rose 38 percent to 40,000 tons in 1984. The Qinghai Province potash plant is under construction and is scheduled for completion in 1987. Its planned capacity will be about 120,000 tons a year.

High priority is being given to expanding the capacity of plants producing compound fertilizers. About 2.3 million tons of compound fertilizer was produced in 1984, and



the 1985 goal is 3 million tons, a 30-percent increase. Compound fertilizer plants in Shanxi, Hubei, and Hebei provinces are being constructed, and imported equipment is being installed.

Domestic pesticide production decreased for the fifth consecutive year. With nearly 1.2 million tons of pesticides in stock, managers reduced domestic output from 331,000 tons to 310,000. There are quality problems with domestically produced pesticides, and the quantity of imported product is growing. Domestic requirements for 1985 likely will be met by imports and by domestic plants that are capable of manufacturing high-quality products.

#### *Private Investment Up; Collective Investments Lag*

Agriculture's share of total state budget funds slotted for capital construction has steadily declined from 11.1 percent in 1979 to 6 percent in 1983. The restructuring of the commune system and policy changes led to a 21-percent drop in investment by collectively owned entities. But households have been allowed to invest in production activities, leading to a 27-percent rise in such investment. Investment in rural housing has been phenomenal since 1980. About 600 million square meters of floor space were constructed each year from 1980 to 1982, 830 million were built in 1983, and 600 million in 1984. The amount of floor space constructed during 1979-84 was more than all the rural housing constructed in the 30 years before 1978.

While direct investment in agriculture has fallen, there has been substantial investment in infrastructure. Transportation, communication, and marketing bottlenecks have impeded agricultural growth, but capital construction funds for this sector have increased and will continue to do so. Investment in the chemical fertilizer industry has remained steady at about 1 percent of total funds expended for capital construction.

For 1985, loans of about 480 billion yuan will be issued in rural areas, up almost 16 percent from 1984. The number of branches of the Agricultural Bank of China and rural credit cooperatives has expanded, interest rates have been adjusted, and the rules that

encourage institutions and households to deposit savings have been implemented.

A large share of these loans will continue to be used by commercial departments to purchase agricultural products. Reform policies now allow specialized households to take out loans, and these loans are growing at an increasing rate. Loans to township-village enterprises likewise have risen rapidly since 1982.

#### *Structure of Rural Labor Force Changing*

Fewer rural workers are growing crops, and an increasing proportion of the rural labor force is working in forestry, fishery, industrial, construction, and commercial operations. In 1984, more than 2 million workers were added to burgeoning township-run rural industries, bringing total employment there to 33 million. Millions of other peasants have stopped cultivating crops, but continue to reside in their villages, even though they have become construction workers. Another 5 million peasants have set up small commercial establishments, and service centers or work as rural peddlers. Still others have bought tractors, trucks, and small boats to haul freight and passengers. Millions of peasants have also invested their own funds to set up small shops to process grain and other agricultural products.

In a major shift in policy, peasants are now allowed to settle in rural towns, providing they supply their own grain rations, have a place to live, have a job in town or have a business license, and obtain permission from their local county authorities to move. In 1984, millions of people living in rural areas changed residences.

Continued rapid growth of nonfarm rural employment will be crucial for rural development in the next decade. China's planners want to prevent explosive growth of population in the major urban areas. Employment in the crop subsector will expand very little, so jobs in rural industry, construction, and services will have to grow rapidly. Population growth compounds the problem because, for 1985 alone, an additional 8 to 10 million new workers will be seeking employment. [Frederick W. Crook (202) 786-1616]



## TRADE

Since 1978, trade policies have been liberalized and regulations have been announced for patents, trademarks, foreign contracts, and import and export duties and licensing. Now the organization of the trade system is undergoing major reforms, new ports are being opened, trade is expanding, and opportunities for foreign investment are widening.

### *Trade System Reformed in 1985*

Trial reform of the trade system began in 1978 and will be extended in 1985. During 1984, 4 Special Economic Zones and 14 important coastal cities were opened to foreign investment. Another 15 internal cities were also granted expanded trading opportunities. Handling of some trade was dispersed from the national Foreign Trade Corporations (FTC's) to trade corporations set up by provinces and some large industrial enterprises. These experiments successfully broadened the base of trade in China.

The full-scale reform of the trade system, implemented on January 1, 1985, formalizes many of the experiments that were underway on a wide scale between 1978 and 1984. The major changes, which the new reforms will accelerate and broaden, include:

- o Separation of government administration from actual trade decisionmaking and implementation,
- o Institution of a trade agent system to serve smaller enterprises engaging in foreign trade, and
- o Encouragement of many more industrial and technological enterprises engaging in trade.

Before reforms began, neither producers nor end-users in China had control over exports and imports. The Ministry of Foreign Economic Relations and Trade (MOFERT), along with The Bank of China and the State Planning Commission, made all trade plans and contracts. FTC's merely distributed the state-procured export goods allocated to them by the commercial system and returned foreign exchange payments to the State. FTC's also divided imports among end-users

according to MOFERT's mandatory plans. No trade was allowed other than that going through FTC's.

Under the new system, MOFERT is still responsible for developing, supervising, and enforcing all state plans and regulations, but its plans contain fewer specific commodity quotas and more general guidelines. Only about 100 strategic commodities continue to have mandatory plans. These include major complete sets of equipment; items purchased or sold in large quantity, such as grains, cotton, and sugar; and commodities under trade agreements. Nonmandatory exports now have only targets for gross foreign exchange earnings. For nonmandatory imports, MOFERT sets a foreign exchange quota and designates trade enterprises to act as importers.

Both FTC's and the other trading enterprises, provincial and industrial, now actually negotiate and implement specific trade deals. Each is supposed to decide its own import or export level, provide management, control finances, hire workers, pay taxes and retain some foreign exchange profits, purchase materials, and arrange credits. All these are new responsibilities. With this new trading independence, other trade-industrial enterprises and provincial trade companies are being allowed to compete directly with the larger FTC's for all trade business. But, because of continued close ties with MOFERT, FTC's remain more important.

In addition, each FTC (and eventually other import and export companies as well) has become a service agency through which smaller enterprises can, for a commission, enter foreign trading. Each smaller enterprise commissioning an FTC to sell its product or purchase an import will take responsibility for profits or losses in the transaction. These producers and end-users are to gain experience in trading by working through the agency so as to eventually be able to carry on their own trade, expanding the number of trading units still further.

Another important purpose of this system is to ensure more direct contact between purchasers and producers. This is of benefit to foreign firms because it reduces the time and bureaucracy required for trading and improves the match between the type and quality of product desired and that delivered.



The final goal of these reforms is to speed progress towards a more developed economy by expanding both exports and imports. The purpose of allowing domestic enterprises a larger role in trade is to increase domestic consciousness of and responsiveness to world market costs of potential imports and international prices and quality standards for potential exports. The reforms will also reduce government subsidies to unprofitable producers and encourage them to combine with other, more profitable enterprises.

Although general goals and guidelines for trade reform have been announced and experimented with, actual provisions of trade reforms are still evolving. Differences are already apparent between early reports of reforms and recent descriptions. For example, concern recently has been expressed over too much decentralization of state control of foreign exchange. This could mean further adjustment may be made in individual trading enterprises' control over their foreign exchange. The success with which new changes are implemented will determine the extent of future adjustments, but more changes are inevitable.

The organizational reform of the trade system is not expected to have any immediate effect on trade in major agricultural commodities because both imports and exports of grains, cotton, and sugar are still under MOFERT's mandatory plans. This means most, if not all, trade in these commodities is still negotiated by MOFERT and implemented through FTC's. Trade in more minor agricultural commodities, however, will be increasingly decentralized.

#### *Agricultural Exports Up, Imports Down*

Recently, China shifted from importer to exporter of corn, cotton, and soybeans. Wheat imports fell 16 percent in 1984, but more than 7 million tons is still imported. Exports rose and imports fell because of record crops. Limited storage facilities and congested internal transportation probably also are restricting imports and enhancing exports.

Exports rose sharply in 1984, creating the largest agricultural trade surplus ever. Farm exports are now about 20 percent of total exports, compared with their relatively stable portion of about 16 percent during 1981 to

## Agricultural Trade

Billion dollars



1983 (table 1). Exports of grains, soybeans, cotton, oilseeds and vegetable oils, meat and livestock products, fruits and vegetables, canned foods, tea, and silk have shown substantial growth in recent years.

Exports are expected to continue rising in 1985 and beyond, although the pace of growth may decline. The currently large exports of corn, soybeans, and soymeal are likely to begin falling after a few years, as domestic demand rises. Rice exports, however, will remain high. Current development plans call for increased production of fruits, vegetables, meat, and livestock products. If production increases as spectacularly for these products as it did for major crops, growing export competition from China is likely later in the decade, particularly in Asian markets. Further growth of China's more traditional exports, tea and silk, may depend upon improvements in product quality and skillful marketing.

With the end of large-scale imports of corn, cotton, and soybeans and much lower wheat and sugar imports, 1984 agricultural imports declined for the second consecutive year, falling another 10 percent from 1983. These five commodities accounted for about 70 percent of total agricultural imports in recent years. Agricultural imports now constitute only about 13 percent of total imports, compared with 25 to 30 percent in 1981 and 1982 (table 1).



While imports of agricultural products declined, imports of related products are up markedly. Log, lumber, and pulp imports have doubled since 1981 and now total about \$700 million. Imports of chemical fertilizers remain substantial and probably also rose somewhat in 1984. Pesticide imports, while much smaller than fertilizer and wood product purchases, jumped several hundred percent in 1983 and may have risen again in 1984.

Agricultural imports will most likely fall again in 1985, dropping around \$500 million. All of the decline will be due to the approximately 35-percent drop in wheat imports forecast for this year. Wheat import demand is, however, expected to level off in subsequent years, stopping the decline in imports. And the gradually rising demand for feed stuffs will eventually raise growth of demand for feed grains and meals beyond growth of supply, pushing long-run prospects for grain imports upward again.

Increasing diversity of agricultural and related imports is likely. Short-term demand for minor agricultural imports, such as fruits, vegetables, meats, and coffee, will continue the substantial increase of the last few years until growth of domestic production begins to fill this need. Demand for breeding stock will be increasing rapidly. Imports of logs, lumber, and pulp are expected to continue rising, while fertilizer and pesticide imports should continue to supply a substantial portion of domestic use.

#### *Grain Trade Commitments Unfulfilled*

Long-term grain agreements, a basic part of the grain import program for many years, proved to be more of a problem than a help to China in recent years. Agreements negotiated in the early 1980's when annual imports of 12 to 16 million tons were planned, could not all be honored when imports dropped to 8 million tons (tables 13 and 14). The U.S. bore the brunt of adjustments, as purchases fell about 2 million tons short of the 6 million-ton agreement minimum in both 1983 and 1984. Purchases from Canada also fell short in both 1983/84 and 1984/85. Other grain agreements also were not fulfilled in at least some years. But in some cases, for example the Australian shortfall in 1983, this was the result of inadequate export supplies.

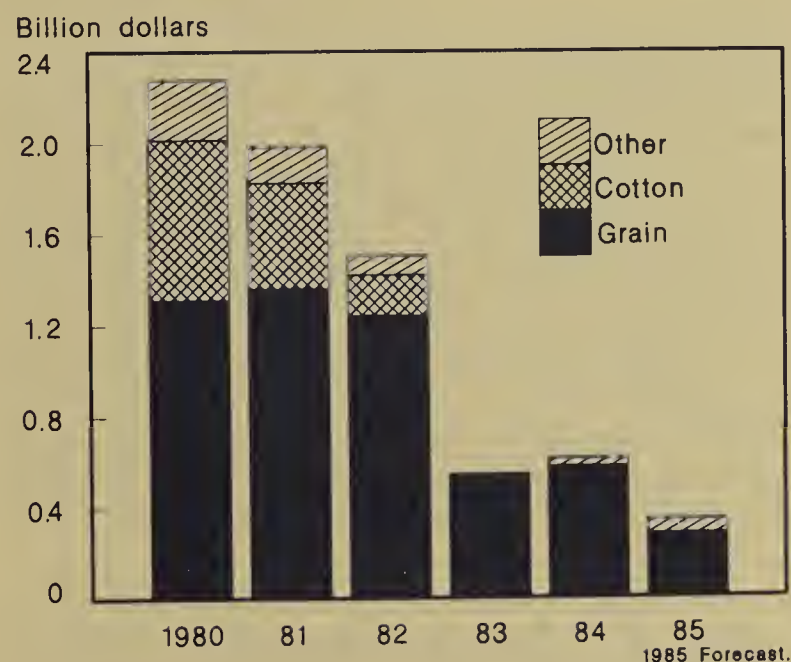
Long-term agreements with Argentina, Australia, France, and the United States have not been renewed and renewal of the Canadian agreement, which expires in July, is unlikely. A period of adjustment to the new trade organization and new grain procurement arrangements is likely before China again considers long-term grain trade agreements. Should grain import demand again rise sharply or the world grain market again tighten substantially, then China might reconsider the need for long-term agreements.

#### *U.S. Agricultural Exports Fall*

U.S. trade with China has followed the general pattern of China's trade in recent years. In 1984, both total exports and imports rose; but agricultural exports, particularly grain exports, fell substantially (tables 16 and 17). U.S.-China trade in 1984 showed a deficit for the second consecutive year, with U.S. imports exceeding exports by \$60 million.

U.S. agricultural exports were off substantially in 1983 and 1984, and will be off again in 1985 because of dropping grain sales. As China's demand for grain from all sources fell, so did U.S. exports. Despite the decline in U.S. grain exports, in 1984 the U.S. share of the China wheat market recovered to 42 percent from 22 percent in 1983 when it had been depressed by the textile dispute.

#### **U.S. Farm Exports to China**



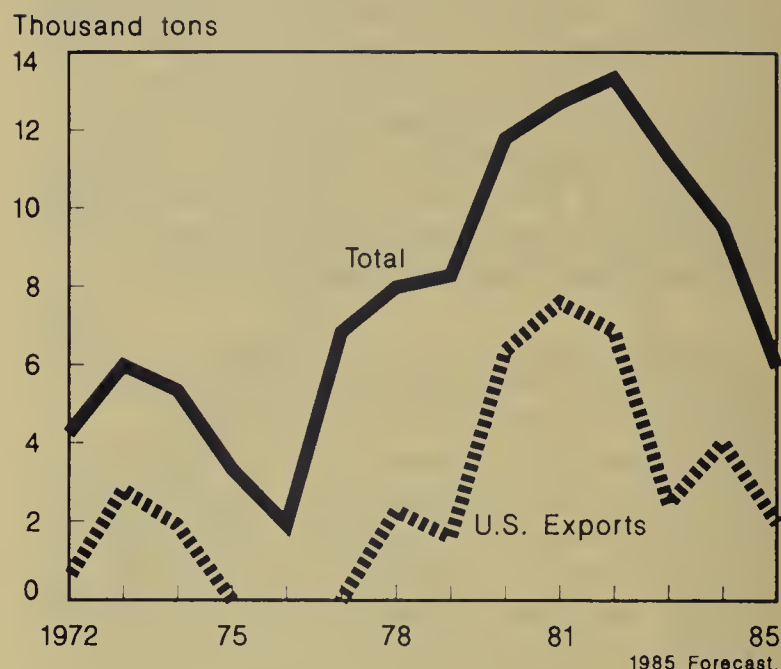
Nevertheless, the U.S. market share remains lower than the average 55 percent portion held between 1980 and 1982 when China expanded wheat imports.

China's recent emergence as an important exporter of agricultural products, particularly to Asia, has given U.S. exports strong new competition. Corn, soybeans, soymeal, and to a lesser extent cotton are making inroads into formerly U.S.-dominated markets such as Hong Kong, Japan, and South Korea. For example, China's share of Japan's corn imports will rise to more than 10 percent in October 1984/September 1985, compared with 0.5 percent in the previous year.

With the exception of cotton, which China will continue to export aggressively for some time, competition in corn and soybeans is expected to gradually diminish. Short-run demand for wheat is expected to remain low, although longer run demand for wheat will rise. The U.S. share of China's wheat market is expected to remain at about 40 percent in 1985 and thereafter as long as demand for wheat remains low. In the long run, China may provide increasing export competition in commodities such as fruits, vegetables, and livestock products.

In late 1984, U.S. exports of other agricultural products, particularly cattle hides, began to rise again. Higher U.S. exports of other agricultural products are expected to continue beyond 1985, as domestic demand

## Wheat Exports to China



expands. Demand for breeding stock, live animals, and semen will become increasingly important as the pace of livestock development steps up.

In the next decade, as in the last year, nonagricultural U.S. exports to China will show the greatest growth. Among these, the agriculture-related products in increasing demand will include livestock services, farm machinery, technical services, and industrial processing technology for food, feed, and cotton. [Carolyn L. Whitton (202) 786-1616]



# CHINA'S FEED INDUSTRY: RECENT DEVELOPMENT AND FUTURE PLANS

Francis C. Tuan 14/

**Abstract:** A major factor responsible for low animal slaughter rates and low meat output in relation to inventories is the inefficient feeding associated with the entire livestock sector. China's Government has launched a national program to develop of the feed industry. The program implies a gradual curtailing of coarse grain and soybean meal exports and possible imports of coarse grains and protein meal to South China in the future. Advanced technology for feed manufacturing is urgently needed. Foreign breeding animals, embryo transplanting techniques, and frozen semen will be imported in coming years.

**Keywords:** China, feed terminology, feed industry, feed grains, protein meal, imports, exports.

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Despite the remarkable progress made in the last several years, China's livestock sector is still characterized by low slaughter rates and low meat output in relation to inventories. A major factor responsible for the low rates and output is inefficient feeding. For example, the hog subsector, which contributed about 94 percent of total meat output in the past few years, consumed an estimated 45 million tons of grain in 1980 and about 60 million in 1984. 15/ These translate into only about 150 and 200 kilograms of total grains fed to each hog in 1980 and 1984, respectively. The averages are far less than the amount used to bring hogs from farrow to finish in the United States.

## *Feed Industry Established Since Mid-1970's*

China has a long history of low grain supplies for human consumption, and thus, little grain was available for livestock feed in the past. Traditionally, farmers fed animals a large amount of such feedstuffs as cooked or raw vegetables, tubers, rice and wheat bran, crop residues, scraps from household meals, and aquatic vegetation. The country therefore paid little attention to the development of feed manufacturing until grain output rose in recent years.

Until now, both the quality and variety of manufactured feed had been very limited.

Although the use of wheat bran in some coastal urban centers began as early as the 1930's and grinding rice bran for feed use started in the 1950's, the first commercial feed mill was not set up until the early 1970's. The mill was built in Shanghai and owned by the Foreign Trade Ministry. The pelleted feed produced by the plant was mainly exported to Japan and Singapore under the brand name "Big Elephant."

China's feed industry started developing in the mid-1970's, along with the increased number of mechanized poultry and hog farms around big cities. In 1976, the country's first compound feed mill was designed and built in Beijing. The mill, with an annual output capacity of 20,000 tons, started full production 3 years later.

In 1978, China imported a complete set of compound feed processing machines with a production capacity of 23,000 tons a year from Hungary. More complete sets of feed processing equipment have since then been bought from the United States, Japan, and Switzerland. By 1978, China's Shanxi Datong Livestock Machine Corporation was able to produce a complete set of feed processing equipment. The equipment was certified by the Ministry of Machinery in 1980 and was the first set of feed processing machines built in China for local distribution. 16/

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15/ Includes rice, wheat, coarse grains, other miscellaneous grains, tubers, and grain byproducts.

16/ This brief history of China's feed industry was adapted from the "The Rise of China's Feed Industry," *China Econ. Yearbook*, 1984, p. V-10.

## Terminology for China's Manufactured Feed

The term feed (*Siliao*) has been used quite loosely in China and includes all edible matter, even including water plants. Terminology often used by China's feed manufacturing industry is now more clearly defined, but still not as rigidly described as in the United States. The terms that are regularly referred to in Chinese language publications include:

- o Compound feed (*Peihe siliao*), also known as full-value compound feed (*Quanjia peihe siliao*) or complete compound feed (*Wanquan peihe siliao*), is a kind of feed in which the ingredients, such as high-energy feed grains, protein meals, feed additives, and drugs, are blended by using scientific procedures to meet the full nutritional requirements of livestock or poultry at each stage of growth. The feed is capable of maintaining life and promoting production without any additional substance being consumed except water. The feed is equivalent to what is called complete feed in the United States.
- o Mixed feed (*Hunhe siliao*) refers to any mixture of two or more feed ingredients. Particularly in rural areas, mixed feed would mean local mixes of whatever feed ingredients were available, with little regard for

uniformity or proportions. This feed is closest to the formula feed manufactured in the United States, but is not as scientifically proportioned, mixed, or processed.

- o Additives (*Tianjiaji*) are micro-ingredients that can be added to the basic feed mix for fulfilling a specific need. They are usually used in micro-quantities and require careful handling and mixing.
- o Premixed feed (*Yuhunhe siliao*) is an uniform mixture of one or more micro-ingredients, such as vitamins, trace elements, or drugs, with a carrier. It is often used to facilitate uniform dispersion of the micro-ingredients in a larger mix. The equivalent name of this type of feed in the United States is premix.
- o Concentrated feed (*Nongsuo siliao*) is a kind of feed containing high-protein components. It is made by adding protein feed, such as animal and plant protein, along with minerals, such as phosphorous, calcium, and salts, to the premixed feed. If the concentrated feed is added to feed grains in stipulated proportions, along with other energy feeds, through proper mixing and processing, it becomes full-value compound feed.

## *Processed Feed Developed Rapidly in Early 1980's*

There are two major systems producing processed feed. One system is run by the Ministry of Commerce (MOC) and the other is by the Ministry of Agriculture, Animal Husbandry, and Fishery (MOAAHF). The latter includes the simple mixed feed produced in the collectives or now township-village enterprises and by households.

It is obvious from the brief history presented that China has been producing processed feed for domestic use for less than a decade. However, the quantity of processed feed has grown rapidly in the last several years. Total output statistics for mixed and compound feed have never been officially published, but the following statistics collected from various sources illustrate the growth of feed manufacturing in recent years (table 6).

Despite the relatively rapid growth of mixed and compound feed output, total processed feed currently accounts for only about 10 percent of the total grains fed to

livestock. Use of mixed and compound feed is therefore fairly new for the country as a whole. Nevertheless, with the feed industry growing and feed consumption patterns gradually changing, livestock raising, at least around big cities, has begun to shift from the traditional to the modern way.

Total use of China's mixed and compound feed is not clear at the present time. The only information available is that, in 1983, 60.5 percent of the 4 million tons of mixed and

Table 6.--Mixed and compound feed output

	Total mixed and compound feed	From the MOC system	From the MOAAHF system
Million tons			
1980	NA	1.10	NA
1981	NA	1.85	NA
1982	5.10	3.00	2.10
1983	7.08	4.08	3.00
1984	12.00	NA	NA

Sources: 1980 and 81: *RmRb* 1/4/84 p. 2; 1982 and 83: *China Econ. Yearbook*, 1984, p. V-11; and 1984: *JjRb* 4/19/85 p. 1.



compound feed produced by the MOC system was fed to hogs, 26.7 percent to poultry, and 2.75 percent to cattle. 17/

Reasons for the rapid growth of mixed and compound feed in the last several years, and likely even faster growth for the rest of this decade, can be summarized as follows:

- o Domestic demand for various kinds of meat has been strong because of the continuous rise in per capita income. Not only will demand continue to grow, but consumers' preferences will shift from low-quality (for example, fatty pork) to high-quality meat output (lean meat).
- o The expanded number of households specializing in livestock production has sharply increased demand for mixed and compound feed. The number of specialized livestock households expanded from about 2 million in 1981 to about 5.5 million in 1983. This number is expected to continue to grow in the next 5 to 10 years. 18/
- o The 82-million-ton increase in total grain production since 1981 released more grain for use as feed. Provinces with surplus grain and high grain stocks are vigorously promoting the processing of more grains as livestock feed. Transportation limitations prevent exporting or shipping much of this surplus grain to deficit areas.
- o Government investment and financial support has facilitated the development of the feed industry. For example, the Government has already appropriated 100 million yuan for development of the feed industry for the 3 years from 1983 through 1985.

#### *Output Targeted for 1990 and 2000*

Promoting livestock production is now one of the top priorities in current agricultural development plans. Government policy aims at promoting better use of feed to raise livestock feeding efficiency. Current grain

conversion ratios are: 4 to 1 for hogs, 3.2 to 1 for poultry meat, and 3.4 to 1 for chicken eggs. The plan is to improve the ratios to: 3 to 1 for hogs, 2 to 1 for poultry meat, and 2.4 to 1 for chicken eggs.

To meet the increasing demand for mixed and compound feed, China issued a relatively comprehensive and ambitious plan at the end of 1984 for developing the feed industry. The plan, entitled "National Program for Development of the Feed Industry during 1984-2000 (A Draft for Trial Implementation)," is divided into two distinct implementation phases. 19/ The first, which covers the remaining years of the 1980's, calls for the establishment of a feed industry foundation. During this period, the goal is to increase China's annual production of mixed and compound feed to about 50 million tons by 1990. The second phase, which covers the decade of the 1990's, calls for the establishment of a modernized feed industry and an annual production of 100 to 120 million tons by the year 2000.

The announcement also asks all relevant central and provincial departments to support and provide assistance in finance, taxation, supply of raw materials, personnel training, and technical service to the development plan. The plan also revealed that the country will use approximately 100 million tons of total grain as feed in 1990 and 150 million in 2000. Total grain includes tubers, wheat and rice bran, soybean meal, coarse grains, and grain byproducts. Of the 100 and 150 million tons of grains to be fed to livestock, China expects that roughly 50 and 70 percent will be in the form of compound and mixed feed. More detailed plan targets are presented in table 7.

#### *Implications of the Draft Plan Vague*

Although the plan briefly discusses other concerns, such as future supplies and purchases of raw materials, manufacturing technology, product quality control, and locations of feed mills, in addition to the impressive plan targets, it is especially vague in terms of exactly how mixed and compound

17/ *China Econ. Yearbook*, 1984, p. V-11.

18/ *JjRb*, 1/26/85, p. 1.

19/ The complete draft plan has not been seen in Chinese publications. However, a brief description of the plan can be found in *JjRb*, 1/10/85, p. 2.

Table 7.--Plan targets for processed feed production

	Targets	
	1990	2000
	1,000 tons	
Feed production:		
Total grain fed to livestock	100,000	150,000
Mixed and compound feed	50,000	100,000-120,000
Premixed	300	900
Concentrated	1,000	3,000
Methionine	10	30
Lysine	6	20
	Number	
Additional plants:		
Large methionine plants	1	1-2
Lysine plants 1/	4-5	2-3
Feed mills (for premixed additives, concentrated) 1/	30-40	50-60

1/ Size greater than 1,000 tons a year.

feeds are to be produced. This is critical because the ratios for the two different kinds of feed imply not only a different structure for the feed industry, but also different combinations of raw materials.

Nevertheless, some general implications of the draft plan can still be drawn. The plan is a response to both the rapidly growing demand for livestock products and the large regional or local grain surpluses that have followed 3 consecutive years of record grain harvests. The interesting question then is whether domestic grain supplies will remain adequate or whether China will import coarse grain in the future. The answer would depend on a combination of factors, such as the ratio of mixed and compound feed to be produced, the quality of the mixed feed, future improvement of the transportation system in China, and the rate of adoption of manufactured feed in rural areas. However, it is reasonable to assume that greater demand for raw materials used for processing feed will first affect current coarse grain exports.

In the northern and northeastern provinces, the expansion and development of the livestock feed sector will largely rely on local grain surpluses, at least for the next few years. However, the rapid expansion around

big cities, particularly in south or southeastern provinces, could translate into higher demand for imported coarse grains.

Requirements for protein meal will likely depend on the factors mentioned above for grain requirements. Currently, compound feed output is reportedly only about 5 percent of total production of mixed and compound feed. 20/ Rapid growth of compound feed production means China's exports of soybean meal may decrease sharply in the next few years. While the gradual development of detoxification of cottonseed and elimination of high erucic acid content in rapeseed will meet some of the growth of demand for protein meal, rapid expansion of compound feed will likely force China to become a protein meal importing country, particularly if soybean cakes cannot be released from use as fertilizer in northern China.

Investment in the feed industry and improvement in the technology of feed manufacturing will be urgently needed in the next several years for the proposed feed industry development. Foreign investment, technology, and equipment will play a vital role in this development.

The techniques, ranging from formulation of feed for various types of animals to basic mill management, are largely new to the country. Large scale establishments near big cities will be the pioneers in development of feed mills and they are the places foreign investment and technological assistance will be initiated. The current production of compound feed is reportedly highly constrained by the lack of the capacity to produce feed additives. Therefore, foreign technology for manufacturing and use of additives is presently highly sought by the Government.

Demand for foreign breeding animals, including hogs, beef, and dairy cattle, will continue to increase in the next few years because of the requirement to obtain efficient feed conversion. Many native Chinese animals are not suitable for the new feeds that will be produced, and the output of native breeds is not meeting consumer preferences. China has cleared up animal quarantine problems with

20/ See *China Econ. Yearbook*, 1984, p. V-12.



the United States, Australia, and Japan and will begin to acquire more foreign livestock breeds, as well as embryo transplanting techniques and imported frozen semen in the coming years.

Finally, according to the draft plan, the growth of China's livestock sector will be characterized by the dual nature of livestock development--more modernized feeding

operations around urban centers and less developed livestock raising in rural areas. This is because most modern mills and additive production facilities will be largely located in and around large cities and will mostly serve the concentrated feeding operations that are developing there. A large share of the targeted increase in mixed feed production will come from smaller rural mills producing rather simple and rudimentary feeds.

Table 8.--Grain area, yield, and production 1/

Grain	1980	1981	1982	1983	1984
Million hectares					
Sown area					
Wheat	29.23	28.31	27.96	29.05	29.35
Rice	33.88	33.30	33.07	33.14	32.30
Coarse grains	31.01	29.88	29.31	29.57	29.00
Corn	20.40	19.43	18.54	18.82	18.50
Sorghum	2.69	2.61	2.78	2.71	2.60
Millet	3.87	3.89	4.04	4.09	3.95
Barley	2.55	2.55	2.55	2.55	2.55
Oats	1.50	1.40	1.40	1.40	1.40
Potatoes	10.15	9.62	9.37	9.40	8.79
Others 2/	12.96	13.85	13.75	12.89	14.00
Total 3/	117.23	114.96	113.46	114.05	113.44
Tons/hectare					
Yield 4/					
Wheat	1.89	2.11	2.45	2.80	2.99
Rice	4.13	4.32	4.89	5.10	5.51
Coarse grains	2.72	2.70	2.82	3.13	3.29
Corn	3.07	3.05	3.27	3.62	3.91
Sorghum	2.52	2.55	3.51	3.08	3.16
Millet	1.41	1.48	1.63	1.84	1.90
Barley	2.98	2.93	2.71	2.71	2.20
Oats	1.20	1.21	1.19	1.18	1.20
Potatoes	2.83	2.70	2.89	3.11	3.44
Others 2/	0.96	1.06	1.00	1.17	1.12
Total 3/	2.73	2.83	3.12	3.40	3.59
Million tons					
Production					
Wheat	55.21	59.64	68.47	81.39	87.68
Rice	139.91	143.96	161.60	168.87	178.09
Coarse grains	84.23	80.81	82.67	92.66	95.36
Corn	62.60	59.21	60.56	68.21	72.34
Sorghum	6.78	6.65	6.97	8.36	8.22
Millet	5.45	5.77	6.58	7.54	7.51
Barley	7.60	7.48	6.90	6.90	5.61
Oats	1.80	1.70	1.66	1.65	1.68
Potatoes 5/	28.73	25.97	27.05	29.25	30.26
Others 2/	12.48	14.64	14.71	15.11	15.73
Total 3/	320.56	325.02	354.50	387.28	407.12

1/ Data presented here are official figures released by the SSB or the Ministry of Agriculture, except for (1) 1984 area, (2) 1984 total and individual coarse grain production, and (3) 1980-84 barley and oat, and other grain area and production. The coarse grain and potato series are inconsistent with the USDA historical series prior to 1976 (available in previous issues of this report and in various Foreign Agricultural Service grain circulars).

2/ Consists of soybeans, pulses, and other miscellaneous grains. All of these items are included in China's definition of total grains.

3/ PRC definition.

4/ Calculated from area and production figures.

5/ Converted to a grain-equivalent weight using a 5:1 conversion ratio.

Sources: China Ag. Yearbook, 1981, 1982, 1983, and 1984; China Stat. Yearbook, 1981, 1983, and 1984; and the 1984 SSB Communiqué.

Table 9.--Oilseeds and cotton area, yield, and production

Item	1980	1981	1982	1983	1984 1/
1,000 hectares					
Sown area					
Cotton	4,920	5,185	5,829	6,077	6,800
Oilseeds, USDA 2/	18,175	20,521	21,594	20,329	21,115
Soybeans	7,227	8,023	8,419	7,567	7,700
Oilseeds, PRC 3/	7,928	9,134	9,343	8,390	8,415
Peanuts	2,339	2,473	2,416	2,201	2,390
Rapeseed	2,844	3,801	4,122	3,669	3,400
Sesameseed	776	818	965	789	800
Sunflowerseed	845	1,040	814	733	825
Other oilseeds 4/	1,124	1,003	1,026	998	1,000
Kg/hectare					
Yield					
Cotton	550	572	617	763	894
Oilseeds, USDA 2/	1,114	1,193	1,254	1,356	1,542
Cottonseed	1,100	1,145	1,235	1,546	1,787
Soybeans	1,099	1,162	1,073	1,290	1,260
Oilseeds, PRC 3/	970	1,117	1,265	1,257	1,408
Peanuts	1,539	1,547	1,621	1,795	2,013
Rapeseed	838	1,069	1,372	1,168	1,234
Sesameseed	334	623	354	442	584
Sunflowerseed	1,077	1,281	1,580	1,828	2,061
Other oilseeds 4/	479	471	601	624	681
1,000 tons					
Production					
Cotton 5/	2,707	2,968	3,598	4,637	6,077
Cotton (1,000 bales) 5/	12,400	13,600	16,500	21,300	27,900
Oilseeds, USDA 2/	20,248	24,484	27,084	28,642	32,554
Cottonseed	5,414	5,936	7,196	9,274	12,154
Soybeans	7,940	9,325	9,030	9,760	9,700
Oilseeds, PRC 3/	7,691	10,205	11,817	10,550	11,852
Peanuts	3,600	3,826	3,916	3,951	4,810
Rapeseed	2,384	4,065	5,656	4,287	4,194
Sesameseed	259	510	342	349	467
Sunflowerseeds	910	1,332	1,286	1,340	1,700
Other oilseeds 4/	538	472	617	623	681
Available oil 6/	2,945	3,848	4,422	4,247	4,853
Available meal 6/	7,184	9,001	9,715	9,731	10,885

1/ All 1984 figures are USDA estimates except for output of cotton, cottonseed, soybean, oilseeds (PRC), peanuts, rapeseed, and sesameseed.

2/ Oilseed data published by USDA include only: soybeans, cottonseed, peanuts, rapeseed, and sunflowerseed; area includes cotton.

3/ China's total oilseed data exclude soybeans and cottonseed.

4/ "Other oilseeds" are calculated as a residual and include mainly huma (an edible oil-bearing flaxseed) and castor bean; oil-bearing tree seeds are excluded.

5/ Cotton production is on a ginned-weight basis. Bales are 480 pounds.

6/ Available oil and meal are estimated for the marketing year following harvest by applying assumed crush and extraction rates to production plus net imports of soybeans, soybean oil, and soybean meal. Other edible oils from grain crops and oil-bearing tree seeds are included in available oil.

Source: China Stat. Yearbook, 1981, 1983, and 1984; China Ag. Yearbook, 1981, 1982, 1983, and 1984; and the 1984 SSB Communique.



Table 10.--Provincial grain production

Province	1981	1982	1983	1984	Province	1981	1982	1983	1984
Million tons									
NORTHEAST					EAST				
Heilongjiang	12.50	11.50	15.49	17.50	Zhejiang	14.20	17.13	15.84	18.17
Liaoning	11.61	11.52	14.85	14.25	Jiangsu	25.12	28.56	30.53	33.06
Jilin	9.22	10.00	14.78	16.18	Shanghai	1.86	2.16	2.07	2.50
					Anhui	17.88	19.33	20.11	22.03
NORTH					CENTRAL				
Shandong	23.13	23.75	27.00	30.40	Hubei	17.07	19.96	19.88	22.50
Hebei	15.75	17.52	19.00	18.70	Hunan	21.71	23.75	26.54	26.00
Beijing	1.81	1.86	2.02	2.18	Jiangxi	12.69	14.09	14.61	15.49
Tianjin	1.07	1.23	1.11	1.31					
Henan	23.15	22.17	29.04	29.20	SOUTH				
Shanxi	7.25	8.25	8.06	8.72	Guangdong	16.56	19.43	19.61	19.60
NORTHWEST					Guangxi	11.50	13.53	13.63	13.50
Shaanxi	7.50	9.25	9.65	10.24	Fujian	8.10	8.48	8.58	8.50
Gansu	4.35	4.69	5.40	5.55					
Nei Monggol	5.10	5.30	5.60	5.94	SOUTHWEST				
Ningxia	1.27	1.20	1.45	1.54	Sichuan	34.66	37.35	40.09	40.80
Xinjiang	3.90	4.08	4.54	4.87	Guizhou	5.68	6.54	7.03	7.40
Qinghai	.80	.93	.90	1.04	Yunnan	9.17	9.46	9.55	10.05
					Xizang	.49	.45	.37	0.48
					Total (sum)	325.02	353.43	387.28	407.68
					SSB Total	325.02	354.50	387.28	407.12

Sources: 1981-1983, China Stat. Yearbook, 1981, 1983, and 1984. Data for 1984 are from preliminary press reports.

Table 11.--Major indicators of textile production

Item	Unit	1980	1981	1982	1983	1984
Yarn	Million tons	2.926	3.170	3.354	3.270	3.220
	Million bales 1/	2/ 16.286	17.580	18.680	NA	NA
Pure-cotton yarn	Million tons	2.133	2.203	2.518	2.292	NA
Cloth	Billion meters	13.470	14.270	15.350	14.880	13.400
	Bil. square meters	12.800	NA	14.920	14.710	NA
Chemical-fiber fabric	Billion meters	NA	NA	(4.800)	5.360	5.800
Pure-cotton fabric	Billion meters	8.710	8.510	10.130	9.040	NA
Chemical fibers	Thousand tons	450.300	527.300	517.000	540.700	730.000
Synthetic fibers	Thousand tons	314.100	384.700	375.300	402.000	NA
Silk	Thousand tons	35.400	37.400	37.100	36.900	NA
Silk textiles	Million meters	795.000	835.000	914.000	999.000	NA
Woolen piece goods	Million meters	100.950	113.080	126.690	142.910	175.000
Knitting wool	Thousand tons	57.309	76.478	92.500	102.100	NA

NA = Not available.

( ) Indicates derived from percentage increase.

1/ A bale of yarn weighs about 179 kgs.

2/ FB 2/19/81, p. L-9.

Sources: China Stat. Yearbook, 1984, pp. 220-221 & 232, annual SSB Communiques, and China Stat. Yearbooks, 1981 and 1983, pp. 229 and 251, respectively, except as otherwise noted.

Table 12.--Livestock yearend inventories and livestock product output

Item	1980	1981	1982	1983	1984 1/
Million head					
Yearend inventory					
Hogs	305.43	293.70	300.78	298.54	306.09
Large animals	95.25	97.64	101.13	103.50	108.32
Draft animals	50.88	54.71	58.33	61.25	63.50
Cattle	71.68	73.30	76.07	78.08	81.50
Dairy cows	0.64	0.70	0.82	.95	1.05
Water buffalos	18.52	18.77	19.14	19.15	19.20
Horses	11.04	10.97	10.98	10.81	10.80
Mules	7.75	8.42	9.00	9.45	9.60
Donkeys	4.17	4.33	4.46	4.59	4.65
Camels	0.61	0.63	0.61	0.56	0.55
Sheep	106.63	109.47	106.57	98.92	94.20
Goats	80.68	78.26	75.22	68.04	64.04
Million head					
Number slaughtered					
Hogs	198.61	194.95	200.63	206.61	218.70
Cattle	3.32	3.02	3.10	3.47	3.67
Sheep & goats	42.42	44.81	48.74	49.24	46.41
Percent					
Slaughter rate					
Hogs	62.1	63.8	68.3	68.7	73.3
Cattle	4.7	4.2	4.2	4.6	4.7
Sheep & goats	23.2	23.9	26.0	27.1	27.8
1,000 tons					
Production					
Meat	12,054	12,609	13,508	14,021	15,250
Pork	11,341	11,884	12,718	13,161	14,315
Beef	269	249	266	315	370
Mutton	445	476	524	545	565
Cow's Milk	1,141	1,291	1,618	1,845	2,210
Sheep and goat milk	226	258	341	374	400
Sheep's wool	176	189	202	194	190
Mohair	12	14	13	11	10
Cashmere	4	4	4	4	4
Eggs	NA	NA	2,809	3,323	3,800

1/ All 1984 data are ERS estimates except for inventory of hogs, large animals, hogs slaughtered, hog slaughter rate, and production of meat, cow's milk, and sheep's wool.

Source: China Stat. Yearbook, 1984, China Ag. Yearbook, 1981, 1982, 1983, and 1984, and the 1984 SSB Communique.



Table 13.--Purchases under recently completed grain trade agreements 1/

Country	Date signed	Delivery period	Grain	Amount	Total
				Million tons	
ARGENTINA					
Agreement:	Sept. 1980	1981-1984	Wheat, corn, & soybeans	1.0-1.5 yearly	
Purchases:		Calendar year 1981	Wheat Soybeans	.126 .081	2/ .207
		Calendar year 1982	Wheat Corn and sorghum Soybeans	.094 .155 .053	2/ .301
		Calendar year 1983	Wheat Corn	2.946 .050	2.996
		Calendar year 1984	Wheat	.001	2/ .001
		4-year total			3.505
		Annual average			.876
AUSTRALIA					
Agreement:	Nov. 1981	1982-1984	Wheat	1.5-2./5 yearly	
Purchases: 3/		Calendar year 1982	Wheat	2.136	
		Calendar year 1983	Wheat	2/ 0.416	
		Calendar year 1984	Wheat	2.425	4.977
		3-year total			1.659
		Annual average			
CANADA					
Agreement:	May 1982	Aug. 1982-July 1985	Wheat	10.5-12.6	
Purchases: 3/		Aug. 1982-July 1983	Wheat	4.424	
		Aug. 1983-July 1984	Wheat	2/ 3.428	
		Aug. 1984-July 1985	Wheat	2/ 4/ 3.100	11.000
		Approximate 3-year total			3.667
		Approximate annual average			
FRANCE					
Agreement:	Sept. 1980	Aug. 1980-July 1983	Wheat	.5-.7 yearly	
Purchases: 3/		Aug. 1980-July 1981	Wheat	.530	
		Aug. 1981-July 1982	Wheat	2/ .080	
		Aug. 1982-July 1983	Wheat	1.345	1.995
		3-year total			.652
		Annual average			
UNITED STATES					
Agreement:	Oct. 1980	1981-1984	Wheat & corn	6.0-8.0 yearly	
		Calendar year 1981	Wheat Corn	7.617 .468	8.085
		Calendar year 1982	Wheat Corn	6.870 1.590	8.460
		Calendar year 1983	Wheat Corn	2.458 1.357	2/ 3.815
		Calendar year 1984	Wheat	4.038	2/ 4.038
		4-year total			24.371
		Annual average			6.093

1/ Earlier years are available in previous issues of this report.

2/ Indicates years with sales of less than annual minimums.

3/ Small amounts of barley sold in addition.

4/ Projected based on Canadian data through April 1985.

Source: Official partner-country trade statistics.

Table 14. --Trade in grain, by country

Item	Calendar year			July/June year		
	1982	1983	1984 1/	1982/83	1983/84	1984/85 2/
	1,000 tons					
IMPORTS:						
Total grain	15,607	13,061	9,791	15,833	9,697	7,800
Argentina	249	2,996	1	2,114	1,012	650
Australia	2,244	416	2,504	1,210	1,534	1,590
Canada	3,527	4,742	3,088	4,300	3,763	2,830
EC	710	884	27	1,439	170	140
Thailand 3/	416	208	134	281	146	180
United States 4/	8,460	3,815	4,038	6,489	3,072	2,410
Wheat	13,337	11,340	9,557	13,005	9,475	7,500
Argentina	94	2,946	1	1,957	1,010	650
Australia	2,136	416	2,429	1,210	1,486	1,500
Canada	3,527	4,659	3,062	4,217	3,737	2,800
EC	710	860	27	1,415	170	140
United States 4/	6,870	2,458	4,038	4,207	3,072	2,410
Coarse grain	1,948	1,675	134	2,664	197	5/ 200
Argentina	155	50	0	157	2	0
Australia	108	0	75	0	49	90
Canada	0	83	26	83	26	30
EC	0	24	0	24	0	0
Thailand	95	161	34	118	121	80
United States 4/	1,590	1,357	0	2,282	0	0
EXPORTS						
Rice 6/	470	580	2/ 1,000	NA	NA	NA
Coarse grain	109	98	1,507	5/ 100	5/ 450	5/ 5,150
Hong Kong	75	66	200	62	80	200
Japan	34	33	252	NA	52	1,700
South Korea	0	0	455	0	11	1,700
Soviet Union 7/	NA	NA	400	NA	100	1,000
Others 7/	NA	NA	200	38	207	550

NA = Not available.

1/ Preliminary.

2/ USDA forecasts as of June 1985. The 1984/85 total grain forecast is a mixed year total--wheat July/June and coarse grain October/September.

3/ Includes rice imports.

4/ Direct exports plus transshipments through Canada.

5/ October/September.

6/ Milled basis. China exports rice primarily to Asian and Eastern European nations and Cuba.

7/ Estimated.

Sources: Official partner-country trade statistics.



Table 15.--Trade in other agricultural commodities, by country

Item	Calendar year			Marketing year		
	1982	1983	1984	1982/83	1983/84	1984/85 1/
1,000 tons						
IMPORTS:						
Cotton				239	54	22
Soybeans	298	0	0	0	0	0
Soybean oil	41	10	10	20	0	10
Oilseeds 2/	0.2	--	NA			
Oils 2/	58.0	15.2	NA			
Cake, meals, & flour 3/	0.8	1.4	NA			
Sugar 4/	2,480	1,663	1/ 1,350			
Australia	387	325	262			
Brazil	119	0	NA			
Cuba	915	772	705			
Philippines	190	0	68			
Thailand	518	90	278			
Others	350	476	1/ 37			
EXPORTS:						
Cotton				17.1	1/ 174.2	261
Bangladesh				0	6.9	
Hong Kong				14.7	95.8	
Indonesia				1.1	12.8	
Japan				1.0	20.2	
Soviet Union & E. Europe				0	1/ 10.0	
Thailand				0.3	17.6	
Others				0	1/ 10.9	
Soybeans	139.4	317.9	1/ 820.5	288.4	1/ 700.0	925
Hong Kong	10.1	10.7	13.0	9.9	13.5	15
Indonesia	0	2.0	54.3	2.0	48.0	125
Japan	111.9	288.0	307.9	258.5	294.5	300
Malaysia	4.9	6.0	37.0	5.5	12.5	75
Singapore	9.7	9.6	8.3	10.6	9.2	10
Soviet Union	0	0	1/ 400.0	0	1/ 300.0	400
Others	2.8	1.6	1.0	1.9	1/ 22.3	0
Soymeal	322.7	682.5	580.0	515.1	587.5	600
Hong Kong 5/	91.6	155.8	126.8	154.1	145.3	100
Indonesia	0	39.6	55.2	34.8	50.1	100
Japan	1.8	17.7	11.3	11.8	17.2	10
Malaysia	49.2	121.0	1/ 107.0	94.0	129.0	100
Philippines	25.5	0	0	0	0	20
Singapore	95.9	109.6	92.1	31.6	0	100
South Korea	0	1.0	1/ 35.0	0	28.2	50
Thailand	54.7	95.0	87.7	93.0	109.0	100
Western Europe	4.0	142.9	65.0	95.8	108.7	20
Oilseeds 2/	276.6	339.8	NA			
Oils 2/	70.3	116.4	NA			
Cake, meals, & flour 3/	404.8	688.1	NA			
Sugar 4/	150.0	130.0	NA			

NA = Not available.

-- = Negligible.

1/ USDA forecasts as of June 1985. Marketing years = cotton, August/July; soybeans, September/August; and soybean oil and meal, October/September.

2/ Excludes soybeans and soybean oil.

3/ Includes soymeal.

4/ Raw-value basis.

5/ Includes all oilmeals exported to Hong Kong.

Sources: Official partner-country trade statistics; various issues of Oil World; International Sugar Organization, Statistical Bulletin, 1985, Vol. 44, No. 4; and UN trade runs.

Table 16.--U.S. agricultural exports to China 1/

Item	Fiscal years			Calendar years		
	1982	1983	1984	1982	1983	1984
1,000 tons						
Wheat	8,221	1,921	4,579	6,870	2,458	4,067
Corn	1,117	2,161	0	1,591	1,356	0
Tobacco	0	0	0	0	0	--
Cattle hides, whole 2/	383	154	247	323	104	500
Soybeans	370	0	0	246	0	0
Cotton	186	2	3	117	2	2
Tallow, inedible	15	0	0	14	0	0
Soybean oil	2	0	--	0	0	10
1,000 dollars						
Wheat	1,268,149	285,423	673,906	1,053,468	377,686	576,319
Corn	138,668	250,130	0	189,358	158,138	0
Tobacco	0	0	0	0	0	889
Cattle hides, whole	13,236	5,197	10,275	10,848	3,657	20,868
Soybeans	95,264	0	0	63,225	0	0
Cotton	292,417	3,256	4,743	177,771	2,342	3,582
Tallow, inedible	7,022	0	0	6,477	0	0
Soybean oil	1	0	22	0	0	7,448
Others	4,321	2,212	3,307	3,555	2,287	4,091
Total agricultural	1,819,078	546,218	692,253	1,504,702	544,110	613,197
Total nonagricultural	1,509,098	1,392,964	2,053,508	1,406,634	1,628,990	2,391,103
Total exports	3,328,177	1,939,182	2,745,761	2,911,336	2,173,100	3,004,300

-- = Negligible.

1/ U.S. domestic exports, f.a.s.-value basis. Exports include transshipments of agricultural products through Canada.

2/ Numbers in thousands.

Sources: U.S. Bureau of the Census, "U.S. Agricultural Exports," country by commodity, monthly printouts; U.S. Department of Agriculture, Economic Research Service, U.S. Foreign Agricultural Trade Statistical Report, various issues.



Table 17.--Major U.S. agricultural imports from China, by calendar year 1/

Commodity	1980	1981	1982	1983	1984
1,000 dollars					
Meats and products, excluding poultry	944	830	1,006	1,040	1,027
Other meats, fresh or frozen	943	736	1,005	971	1,020
Poultry and products	24,438	24,668	11,506	8,368	12,358
Eggs	283	289	447	591	1,003
Feathers and down, crude	24,155	24,377	11,060	7,776	11,355
Hides and skins	913	715	836	1,119	927
Furskins	508	131	481	892	875
Wool, unmanufactured, apparel grades	4,309	5,860	4,400	4,182	4,020
Sausage casings	2,948	2,991	1,548	2,438	2,076
Silk, raw	4,267	6,863	5,705	5,140	4,518
All other animal products	15,986	14,790	12,213	14,655	16,418
Grains and feeds	2,774	3,360	3,360	3,889	4,461
Fruits and preparations	2,299	3,281	5,860	6,519	5,466
Fruits, prepared or preserved	2,260	3,279	5,846	6,517	5,461
Nuts and preparations	1,723	1,886	2,133	5,846	8,207
Vegetables and preparations	20,220	36,539	46,220	18,796	57,762
Vegetables, prepared or preserved	19,947	36,116	45,846	18,385	57,134
Mushrooms, canned	13,503	22,942	27,997	4,559	37,947
Waterchestnuts	2,432	6,606	9,239	6,303	10,795
Sugar and related products	6,972	8,033	7,461	8,078	5,278
Spices	2,824	4,072	5,557	6,103	7,906
Beverages	11,329	14,101	30,154	22,483	30,912
Coffee and products	0	32	4,002	1,444	0
Cocoa and products	237	1,674	13,958	7,935	8,701
Tea	9,922	10,731	9,995	9,938	18,279
Malt beverages	681	1,313	1,629	2,413	2,876
Oilseeds and products	2,112	153,357	2,280	7,902	4,661
Oilseeds and oilnuts	131	153,017	1,629	6,361	1,912
Oils and waxes, vegetable	1,976	340	651	1,541	2,749
Seeds, field and garden	278	1,100	1,367	778	1,288
Essential oils	13,327	9,882	11,974	13,944	14,006
Drugs, crude natural	13,629	4,999	12,810	8,282	6,282
All other vegetable products	1,815	2,001	3,703	3,422	4,372
Total agricultural commodities	133,107	299,328	170,093	142,985	191,961
Total nonagricultural commodities	909,220	1,530,699	2,045,763	2,101,115	2,872,839
Total imports	1,042,327	1,830,027	2,215,856	2,244,100	3,064,800

1/ Imports for consumption, customs-value basis.

Sources: U.S. Department of Commerce, Bureau of the Census, "U.S. Agricultural Imports," country by commodity, annual printouts; U.S. Department of Agriculture, Economic Research Service, U.S. Foreign Agricultural Trade Statistical Report, various issues.

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FB or FBIS	Foreign Broadcast Information Service, Daily Report: China, National Technical Information Service, U.S. Department of Commerce, Springfield, Virginia.
JjRb	Jingji Ribao (Economic Daily), Beijing, China.
JP or JPRS	U.S. Joint Publications Research Service, China Report, National Technical Information Service, U.S. Department of Commerce, Springfield, Virginia. This report is published in three separate sections. JPE, refers to the China Report--Economic Affairs; JPP, refers to China Report--Political, Sociological, and Military Affairs; JPA, refers to the China Report--Agriculture; and JP-CRF, refers to the China Report--Red Flag.
RmRb	Renmin Ribao (People's Daily), Beijing, China.
SSB Communique	Communiques of the State Statistical Bureau of the People's Republic of China on fulfillment of China's National Economic Plans, Beijing, China's Financial-Economic Press, 1980, 1981, 1982, 1983, and 1984. These communiques are also published in RmRb and FBIS.